PUBLISHED UNDER THE SUPERINTENDENCE OF THE SOCIETY FOR THE DIFFUSION OF USEFUL KNOWLEDGE.

THE

Companion to the Almanac;

OR

YEAR-BOOK

OF

GENERAL INFORMATION;

FOR

1828.

CONTAINING,

INFORMATION CONNECTED WITH THE CALENDAR,

AND EXPLANATIONS OF

The Celestial Changes,

AND THE

NATURAL PHENOMENA OF THE YEAR.

GENERAL INFORMATION ON SUBJECTS OF

CHRONOLOGY, GEOGRAPHY, STATISTICS, *&c.*

Useful Directions and Remarks.

THE LEGISLATION, STATISTICS, PUBLIC IMPROVEMENTS, AND MECHANICAL INVENTIONS, OF 1827.

LONDON:
PUBLISHED BY BALDWIN AND CRADOCK;
PATERNOSTER-ROW.

LONDON
Printed by WILLIAM CLOWES,
Stamford-Street.

PRELIMINARY OBSERVATIONS.

In the British Almanac, published under the superintendence of the "Society for the Diffusion of Useful Knowledge," it was announced that, in order to afford room for conveying more full information upon many of the matters handled in that Almanac, a Companion was preparing, by way of Supplement. This little work is now submitted to the public. Its conductors trust, that the extent and variety of the information which it contains, embracing much knowledge of practical interest, and of general utility, will compensate for the delay which has taken place in its publication. That delay was unavoidable, from the necessary attention to accuracy in the details;—and as the matter which the Companion contains is by no means of a temporary character, although arising out of the passing time, it is hoped that it will be still acceptable to all the numerous purchasers of the British Almanac, and, indeed, to all who desire a convenient Manual of reference on many points of universal importance.

The Table of Contents will at once exhibit the particulars of which the Companion to the Almanac is composed. These are divided into *four* Parts. The *first* embraces explanations of the various subjects of inquiry arising out of that part of the Almanac called the "Calendar," such as the Changes of Style,—the Festivals of the Church,—the Celestial Phenomena, and the Natural Appearances of the Year,—the Weather,—the Tides, &c. In these explanations care has been taken to render the knowledge conveyed as concise and familiar as possible, leading the reader forward to the more complete and more scientific information already published, or to be published, in the Treatises of the Society. The *second* Part contains a body of important general information, in a tabular form, such as Tables of Chronology, of Statistics, and of the Population of the United Kingdom,—the Longitudes and Latitudes of Remarkable Places,—Tables of Equalization of the Imperial Standard, with ancient and local Weights and Measures,—Explanation of Algebraic Signs,—as well as many other points calculated to assist the inquiries of all classes

of readers. The *third* part is composed of several short chapters of information and advice, supplementary to the "Useful Directions" in the British Almanac;—these may be consulted with advantage by all those who are either desirous of fixing sound principles of conduct in their own minds, or of assisting their less informed neighbours in the care of their health, and their property. The *fourth* part is entirely a retrospect of many important particulars arising out of the progress of society in the past year. The Acts of Parliament most important to be generally known have been carefully abridged from the Statutes, retaining the original phraseology where necessary;—the Parliamentary Returns for 1827, which form several folio volumes, have been condensed into a dozen pages, so as to afford an accurate Tabular view of the state of Finance, Commerce, Jurisprudence, and Public Morals and Intelligence, in the United Kingdom;—and the work concludes with a brief account of the more important Public Buildings commenced, advanced, or completed during the past year, and of the most striking Mechanical Inventions which that period has produced.

It must be obvious, from the foregoing enumeration, that the Companion to the Almanac cannot embrace every subject upon which an intelligent reader, or observer of passing events, may want a ready Manual of Reference. But it is also evident that, by annually varying the contents of this little work, a body of most important information may be gradually collected;—and a record preserved of the most permanent features of the passing year. The conductors, therefore, beg to impress upon the purchasers of the Companion, that it is not a merely temporary work; and they entreat them to preserve it as the first of a Series, to be annually published, with such improvements as will naturally arise out of a diligent and systematic collection of the various facts that appear of the most consequence to be generally diffused, as auxiliary to the great object of increasing the ability to acquire *Useful Knowledge.*

The "Companion to the Almanac" will in future be published before the close of the current year,—at the same time, or very soon after the publication of "The British Almanac."

February 27, 1828.

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COMPANION TO THE ALMANAC.

PART I.

INFORMATION CONNECTED WITH THE CALENDAR, THE CELESTIAL CHANGES, AND THE NATURAL PHENOMENA OF THE YEAR.

I. ON THE CALENDAR, AND ITS SUCCESSIVE REFORMS.

THE divisions of time, such as they are presented in the Calendar, are composed of days, weeks, months, and years. The modes of determining these divisions have been various amongst the nations of antiquity, and there are still variations in these modes in the modern world.

The manner of reckoning the DAYS by the ancient Jews, and which subsists amongst that people at the present time, is, to commence the day at a certain hour of the evening, and to finish it on the next evening at the same hour. Thus their sabbath begins on the afternoon of Friday, and is completed on the afternoon of Saturday. The Roman Catholic church also commences its festivals in the evening; and this custom is retained amongst ourselves in some of our popular observances, such as the eve of St. John, and Christmas eve.

The civil day now commences at 12 o'clock at midnight, and lasts till the same hour of the following night. The civil day is distinguished from the astronomical day, which begins at noon, and is counted up to 24 hours, terminating at the succeeding noon. This mode of reckoning the day is that used in the Nautical Almanac, and it sometimes leads to mistakes with persons not familiar with this manner of computation: a little consideration will obviate the difficulty. Thus, January 10, fifteen hours in astronomical time, is January 11, 3 in the morning, civil time. In France, and in most of the states of Europe, as with us, the hours are counted up to 12, from midnight till noon, and from noon till midnight. In parts of Italy, and of Germany, the day is held to commence about sun-set, and the hours are counted on till the next sun-set. This mode is very inconvenient to travellers, as the noon of the "Italian hours" at the summer solstice is 16 o'clock, and 19 o'clock at the winter solstice.

The English names of the days of the WEEK are derived from the Saxons; and they partly adopted these names from the more civilized nations of antiquity. The following ingenious origin of the ancient names has been suggested in connexion with astronomical science. The planetary arrangement of Ptolemy was thus: 1, Saturn; 2, Jupiter; 3, Mars; 4, the Sun; 5, Venus; 6, Mercury; 7, the Moon. Each of these planets was supposed to preside, successively, over each hour of the 24 of each day, in the order above given. In this way Saturn would preside over the first hour of the first day; Jupiter over the second hour; Mars over the third; the Sun over the fourth, and so on. Thus the Sun, presiding over the fourth, eleventh, and eighteenth hours of the first day, would preside over the first hour of the second day; and carrying on the series, the Moon would preside over the first hour of the third day, Mars over the first hour of the fourth day, Mercury over the first hour of the fifth day, Jupiter over the first hour of the sixth day, and Venus over the first hour of the seventh day. Hence, the names of the days yet used in the learned professions throughout Europe. The present English names are derived from the Saxon:—

Latin.	English.	Saxon.
Dies Saturni	Saturday	Seterne's day.
Dies Solis	Sunday	Sun's day.
Dies Lunæ	Monday	Moon's day.
Dies Martis	Tuesday	Tiw's day.
Dies Mercurii	Wednesday	Woden's day.
Dies Jovis	Thursday	Thor's day.
Dies Veneris	Friday	Friya's day.

Tiw, Woden, Thor, and Friga were deities of the Pagan Saxons. Thor was the god of thunder, as well as the ancient Jove; and Friga was a goddess, the *wife* of Woden.

Almost all nations have regulated their MONTHS, in great degree, by the revolution of the moon. Some have endeavoured to unite this division with the annual course of the sun, by an augmentation of days at the end of each year, or by adding a thirteenth month at the end of every third year. The Jews and the Athenians followed this latter method. The Macedonians, and some nations of Asia, assigned their months 30 and 31 days. The Turks and the Arabs have 29 and 30 days. The months of the Anglo-Saxons were governed by the revolutions of the moon. Their common year consisted of twelve lunar months, three months being appropriated to each of the four seasons; but every third year contained an additional lunar month, which was given to the summer season. The names of their lunar months either had reference to their religious ceremonies, or to the natural appearances of the year.

A considerable variation prevailed generally amongst the nations of antiquity, and still partially prevails, with regard to the commencement of the YEAR. The Jews dated the beginning of the sacred year in the month of March; the Athenians in the month of June; the Macedonians on the 24th September; the Christians of Egypt and Ethiopia on the 29th or 30th of August; and the Persians and

Armenians on the 11th of August. The Jewish civil year begins on the first day of the month *Tisri*, which this year corresponds with our 9th of September; the Mahommedan begins on the first of the month *Moharem*, which this year corresponds with our 14th of July. Nearly all the nations of the Christian world now commence the year on the 1st of January; but as recently as 1752, even in England, the year did not legally and generally commence till the 25th of March. In Scotland, at that period, the year began on the first of January. This difference caused great practical inconveniences, and January and February, and part of March, sometimes bore two dates, as we often find in old records, as 1711-12. This practice often leads to chronological mistakes: for instance, we popularly say, "The Revolution of 1688;" that great event happening in February of the year 1688, according to the then mode of computation: but if the year were held to begin, as it does now, on the 1st of January, it would be "The Revolution of 1689." In the anniversaries given in the *British Almanac*, the alterations of style, made in 1752, have not been followed; as any correction of date would have embarrassed the reader in historical and biographical references.

The year, properly so called, is the solar year, or the period of time in which the sun passes through the twelve signs of the Zodiac. This period comprises 365 days, 5 hours, 48 minutes, 51 seconds, 6 decimals, and is called the astronomical year.

The Calendar is a table of the days of the year, arranged to assist the distribution of time, and to indicate remarkable days connected with devotion or business. If every nation had adopted the same divisions of time, and a uniform calendar had been general throughout civilized states, history would present much fewer difficulties and contradictions. The progress of astronomical science has necessarily produced great changes in the manner of dividing time; and thus, whilst some nations have been ready to give their calendar every possible advantage of a scientific construction, the prejudices of others have rendered them unwilling to depart from their accustomed mode, however inaccurate. It may be curious and instructive to trace, very briefly, the changes of the calendar, ordinarily called the changes of style.

The Romans called the first days of each month *Calends*, from a word which signified *called;* because the pontiffs on those days called the people together, to apprise them of the days of festival in that month. Hence we derive the name of CALENDAR.

The Roman calendar, which has in great part been adopted by almost all nations, is stated to have been introduced by Romulus, the founder of the city. He divided the year into ten months only; Mars, Aprilis, Maius, Junius, Quintilis, (afterwrds called Julius,) Sextilis, (afterwards called Augustus,) September, October, November, December. Mars, Maius, Quintilis, and October, contained 31 days, and each of the six other months 30 days; so that the ten months comprised 304 days. The year of Romulus was, therefore, of 50 days' less duration than the lunar year, and of 61 days' less than the solar year; and its commencement

of course did not correspond with any fixed season. Numa Pompilius corrected this calendar, by adding two months, Januarius, and Februarius, which he placed before Mars. Julius Cæsar, being desirous to render the calendar still more correct, consulted the astronomers of his time, who fixed the solar year as 365 days, 6 hours, comprising, as they thought, the period from one vernal equinox to another. The six hours were set aside, and, at the end of four years, forming a day, the fourth year was made to consist of 366 days. The day thus added was called intercalary, and was added to the month of February, by doubling the 24th of that month, or, according to their way of reckoning, the *sixth* of the calends of March. Hence the year was called Bissextile. This almost perfect arrangement, which was denominated the Julian style, prevailed generally through the Christian world till the time of Pope Gregory XIII. The calendar of Julius Cæsar was defective in this particular; that the solar year, consisting of 365 days, 5 hours, and 49 minutes, and not of 365 days, 6 hours, as was supposed in the time of Julius Cæsar, there was a difference between the apparent year and the real year of eleven minutes. This difference, at the time of Gregory XIII., had amounted to ten entire days, the vernal equinox falling on the 11th, instead of the 21st of March, at which period it fell correctly at the time of the Council of Nice, in the year 325. To obviate this inconvenience, Gregory ordained, in 1582, that the 15th October should be counted instead of the 5th for the future; and, to prevent the recurrence of this error, it was further determined that the year beginning a century should not be bissextile, with the exception of that beginning each fourth century. Thus, 1700 and 1800 have not been bissextile, nor will 1900 be so; but the year 2000 will be bissextile. In this manner three days are retrenched in four hundred years, because the lapse of the eleven minutes makes three days in about that period. The year of the calendar is thus made as nearly as possible to correspond with the true solar year; and future errors of chronology are avoided.

The adoption of this change, which is called the Gregorian, or New Style, (the Julian being called the Old Style,) was for some time resisted by states not under the authority of the see of Rome. The change of the style in England was established by an act of parliament, passed in 1752. It was then enacted that the year should commence on the 1st of January, instead of March 25; and that in the year 1752, the days should be numbered as usual until September 2, when the day following should be accounted the 14th September, omitting eleven days. The Gregorian principle of dropping one day in every hundredth year, except the fourth hundredth, was also enacted. The alteration was for a long time opposed by the prejudices of individuals; and even now, with some persons, the old style is so pertinaciously adhered to, that rents are made payable on the old quarter-days, instead of the new. For this reason, and not in deference to the prejudice, the *old* festivals are mentioned in the *British Almanac*. The Russians still retain the Old Style, thus creating an inconvenience in their public

and commercial intercourse with other nations, which we trust that the growing intelligence of the people will eventually correct.

During the period in which France was a Republic, the authorities introduced an entire change in the calendar, which was in existence more than twelve years; and is important to be noticed, as all the public acts of the French nation were dated according to this altered style. The National Convention, by a decree of the 5th October, 1793, established a new era, which was called, in the place of the Christian era, the era of the French. The commencement of each year, or the first "Vendimiaire," was fixed at the midnight commencing the day on which the autumnal equinox fell, as determined at the observatory at Paris. This era commenced on the 22nd September, 1792, being the epoch of the foundation of the Republic; but its establishment was not decreed till the 4th "Frimaire" of the year II. (24th November, 1793). Two days afterwards the public acts were thus dated. This calendar existed till the 10th "Nivose," year XIV. (the 31st December 1805) when the Gregorian mode of computation was restored.

Correspondence of Ancient Eras with the Vulgar Era.

The year of the Julian period	6541
From the first Olympiad	2604
From the foundation of Rome, according to Varro	2581
From the epoch of Nabonassar	2577
From the Christian era	1828

The 5587th year of the Jews begins on the 22nd of September, 1827, and ends on the 8th of September, 1828.

The 1243rd year of the Turks begins on the 25th of July, 1827, and ends on the 13th of July, 1828.

II. EXLANATION OF

"PRELIMINARY NOTES FOR THE YEAR."

[British Almanac, Page 7.]

1. DOMINICAL LETTER.—The seven days of the week, reckoned as beginning on the 1st of January, are designated by the first seven letters of the alphabet, A, B, C, D, E, F, G; and the one of these which denotes Sunday is the *dominical* letter. Thus, if the year begin on Sunday, A is the dominical letter; if it begin on Monday, that letter is G; if on Tuesday, it is F, and so on. Generally, to find the dominical letter, call New Year's Day A, the next day B, and so on till you come to the first Sunday, and the letter that answers to it is the dominical letter. If there were 364 days, or exactly 52 weeks in the year, the dominical letter would be always the same; but the year contains 365¼ days; an excess of 1¼ day over the 52 weeks. The day is taken into the account every

year, and the one-fourth makes a day in every four years; so that the dominical letter falls backward *one letter* for each of the three years in which the date or number of the year cannot be divided, without remainder, by 4, and *two letters* every fourth year, when the date can be so divided: as in the present year 1828, it is divisible by 4, and therefore February will contain 29 days. The year began on Tuesday: count forward Tuesday to Sunday, inclusive, is six days; and the sixth letter from A inclusive is F. Therefore, at first F is the dominical letter; but the 29th of February, which is added, or *intercalated*, throws the 1st day of March a day later in the week than it would otherwise have been; and, therefore, the Sunday letter for March and all the remaining months will be E. The years which have the 29 days in February, and the two dominical letters, are called *Bissextiles*, for the reason already given; or *leap years*, because the day of the month, after February, *leaps* over a day of the week. In law, the 28th and 29th of February are accounted *one* day.

2. The Golden Number. At the end of every nineteen years, the new and full moons happen at very nearly the same times of the year. The ancients discovered this, and reckoned the nineteen years, or "cycle of the moon," as it is called, so that it terminated the year before the Christian era. This cycle was marked by the Greeks with letters of gold. Therefore, to find the golden number, or number of the year in this cycle, add 1 to the date; divide by 19: the quotient is the number of cycles of the moon since the birth of Christ, and *the remainder is the golden number.* As the present year is 1828, add 1, is 1829; divide by 19, is 96 cycles, and there remains 5, *the golden number.*

3. The Cycle of the Sun is the number of years that elapse before the Sundays throughout the year happen on the same days of the month. If there were 364 days in the year, that would happen every year; if 365, it would happen every seventh year; but because the one-fourth of a day makes an alteration of a day every fourth year, the cycle must extend to 28 years. Nine years of this cycle had elapsed before the birth of Christ. Therefore, to find the cycle of the sun, add 9 to the date, divide by 28; the quotient is the number of cycles since the birth of Christ; and the remainder is the cycle of the sun: as, for the year 1828, add 9, is 1837; divide by 28, the quotient is 65 cycles, and the remainder is 17, the cycle of the sun.

4. The Epact is the moon's age for the first day of January, or the *equation* between the beginning of the solar and the lunar year. The time from one new moon to another is about 29½ days. Thus there are, in a year, twelve revolutions of the moon, and 11 days over: therefore, the twelfth new moon will take place 11 days earlier each year than it did the year before. In the lunar cycle of 19 years, there are 12 new moons in each of 12, and 13 in each of 7; because the 11 days of yearly difference in three years exceed a lunar month by 3½ days. If it were not for the odd minutes and seconds, the age of the moon on the 1st of January could always be found, by multiplying the golden number by 11, and dividing

by 30, then the remainder would be the *epact*, or age of the moon, on the 1st of January. The following method will answer for the *day* of the moon's age on the 1st of January till the end of the present century: Take 1 from the golden number, multiply what is left by 11, divide by 30; the remainder is the *epact*, or moon's age, on the 1st of January: as, for 1828, the golden number is 5; take away 1, leaves 4; multiply by 11, is 44; divide by 30, remains 14, the *epact*, or moon's age, on the 1st of January.

5. The Number of Direction is the number of days after the 22d of March, including both days, upon which Easter Sunday takes place. For instance, the Number of Direction for 1828 is 16. Easter Sunday is April 6, being 16 days inclusive from March 22.

6. Easter is directed to be celebrated on the first Sunday after the full moon that happens next after the 21st of March; which being the fourteenth day of the first Jewish month, corresponds to their first day of the week after the Passover, the anniversary of the Resurrection of Christ. The time at which this day must happen varies with the year; but the limits within which it must fall are the 22d of March and the 25th of April, inclusive, making a period of thirty-five days.

In order to find Easter, the first thing to be done is to find *Easter limit*, that is, the number of days after the first of March, on which the full moon preceding Easter shall happen. To do this, add 6 to the epact, and subtract the sum, if less than 30, or the remainder when 30 is taken away, if more, from 50, the remainder is the day after the first of March, on which the full moon preceding Easter happens. Thus, for 1828, the epact is 14, add 6 is 20, subtract this from 50, leaves 30 days after the first of March, when the full moon preceding Easter takes place, which is the 31st, or last day of March, then the following Sunday is Easter day. To find the day itself, add 4 to the number of the dominical letter, subtract the sum from the limit, and the remainder from the next number of 7s that is greater than itself: this last remainder, added to the limit, will give the number of days from the first of March to Easter day, including both: if less than 31, it will show on what day of March Easter falls, and if greater, take 31 from it, and the remainder will show upon what day of April. Thus, for 1828, the dominical letter is E, the number of which is 5. Add 4 to 5 is 9; take this from 30 (the limit) leaves 21; take this from 28, (the number of 7s next greater) there remains 7; add this to 30 (the limit) gives 37 days from the first of March to Easter, both included; take 31 (the days in March) from 37 leaves 6; therefore Easter day must fall on the 6th of April.

On what day will it fall in 1829?

The Dominical letter for that year will be D.

The Golden number: 1830 ÷ 19 leaves 6; then $6-1=5\times 11=55-30$ leaves 25, *the epact.*

Then for *Easter limit*,

$25+6=31$, take away 30 leaves 1; and $50-1=49$ days after the first of March to the Easter full moon. Again:

D is 4, add $4=8$, and $49-8=41$, $42-41=1$, and $49+1=50$ days from March 1st to Easter, including both. Take away 31 for

March, leaves 19, the day of April on which Easter will happen in 1829.

The reasons of some of the calculations here are omitted, as they would have swelled the article to too great a bulk, but they will be given at length in a future Companion.

7. THE ROMAN INDICTION. The cycle of indiction has no connection with the motions of the sun and moon further than its consisting of 15 years. It was established by the Emperor Constantine in the year 312, to regulate certain payments by the subjects of the empire. Therefore, to find it for any year, subtract 312 from the date, divide by 15, and the remainder is the indiction; as from 1828, subtract 312 leaves 1516, divide by 15 leaves 1, the Roman Indiction.

8. SEPTUAGESIMA SUNDAY is the ninth Sunday before Easter.

9. SHROVE SUNDAY is the seventh before Easter.

10. WHIT SUNDAY is the seventh after Easter.

11. TRINITY SUNDAY is the eighth after Easter.

12. ADVENT SUNDAY is the Sunday nearest the 30th of November, whether before or after.

When Easter is known, any of the days that depend on it can be easily found. As, for 1828, Easter is April 6, Whitsunday is 7 weeks, 49 days, after. Then 6 from 30 (days in April) leaves 24; 24 from 49 leaves 25, therefore Whitsunday, 1828, is the 25th of May.

III. THE DAYS OF THE CALENDAR.

JANUARY.

1. *New Year's Day.*—The ancient popular customs connected with New Year's Day, Shrove-tide, May-day, Christmas, and other festivals, will be illustrated in a future "Companion to the Almanac."

1. *Circumcision.*—This festival was originally called the Octave of Christmas; and the first mention found of it is in the year 487. It was instituted by the Church to commemorate the ceremony under the Jewish law, to which Christ submitted, on the eighth day of his nativity; and was introduced into the Liturgy of the Church of England in 1550.

6. *Epiphany.*—The word Epiphany signifies *appearance* or *apparition*. This festival is kept in commemoration of the "Manifestation" of the Saviour of mankind to the Gentiles, and appears to have been first observed as a separate feast in the year 813. The primitive Christians celebrated the Feast of the Nativity for twelve days, observing the first and last with the greatest solemnity. From the circumstance of this festival being twelve days after Christmas, it is vulgarly called "Twelfth-Day."

8. *Plough Monday* is the first Monday after the Epiphany, and received this appellation from its having been fixed upon by our forefathers, as the period when they returned to the duties of agriculture after the festivities of Christmas.

23. *Terms.* The four seasons of the year in which the courts of justice are open for determining suits in law, are denominated Terms; the first, called Hilary or Lent Term, commences on the 23d of January, and lasts until the 12th of February; the second, styled

Easter Term, begins on the Wednesday fortnight after Easter Day, and ends the first Monday after Ascension Day; the third, Trinity Term, takes place on the Friday immediately following Trinity Sunday, and continues to the Wednesday fortnight, from that period; and the fourth, named Michaelmas Term, commences on the 6th of November, and terminates on the 28th of the same month. Sittings at Nisi Prius are held both during and after the Terms, by the several Courts of King's Bench, Common Pleas, and Exchequer, owing to the business of those courts having much increased in modern times; while it is also to be noticed, that the Exchequer is open eight days before any Term begins, except Trinity, before which it is open only four days. The inconvenience of making two of the terms for the administration of the laws depend upon two *moveable* feasts of the Church, will doubtless soon receive a legislative correction. On all accounts it is desirable to substitute fixed periods for Easter and Trinity Terms.

There is one day in three of the Terms in which not any business is transacted: namely, Candlemas Day, in Hilary Term; Ascension Day, in Easter Term; and Midsummer, in Trinity Term. The early Christians had not any particular stated seasons for hearing and deciding upon civil causes; every day throughout the year, Sunday not excepted, was alike open to appeals.

25. *Conversion of St. Paul.*

29. *Accession of King George IV.*—The birth-day, accession, proclamation, and coronation of the reigning King of England, are political festivals, set apart, both in ecclesiastical and civil matters, as red-letter or holy-days.

30. *King Charles the First's Martyrdom.*—The death of Charles I. is celebrated as a fast of the Church.

FEBRUARY.

2. *Purification.*—This day is kept in the reformed Church as a solemn festival, in memory of the purification of the Virgin Mary, who submitted to the injunction of the law under which she lived, and presented the infant Jesus in the Temple. The festival was celebrated in the Christian churches with an abundance of light, and was originally called "Candlemas Day," as well as the Day of Purification. The practice of lighting the churches has been discontinued in this country since the second year of Edward the Sixth. In the Romish Church, the original name, and all its attendant ceremonies, are still retained.

3. *Septuagesima Sunday.*—Septuagesima Sunday is a Sunday dependent upon Lent, as that season is upon Easter. It is to be considered as the preparation for the fast of Lent. Its observation was instituted by Pope Gregory the Great. The name of the first Sunday in Lent, having been distinguished by the appellation of Quadragesima, and the three weeks preceding having been appropriated to the gradual introduction of the Lent Fast, the three Sundays of these weeks were called by names significant of their situation; and reckoning by *Decades* (tenths), the Sunday preceding Quadragesima, received its present title of Quinquagesima, the second Sexagesima, and the third Septuagesima.

14. *St. Valentine.*—The practice of "choosing a Valentine," as it is called, on this day, is too well known to need explanation. The origin of this custom has been much controverted: it is indisputably of very ancient date. Valentine was a presbyter of the Church, who suffered martyrdom under Claudius II., at Rome, A. D. 271.

19. *Shrove Tuesday.*—After the people had made the confession required at this season by the discipline of the ancient Church, they were permitted to indulge in festive amusements, although not allowed to partake of any repast beyond the usual substitutes for flesh; and hence arose the custom yet preserved of eating pancakes and fritters at Shrovetide. On these days of authorized indulgence, the most wanton recreations were tolerated, provided a due regard was paid to the abstinence commanded by the Church; and from this origin sprang the Popish Carnival. From the loose pastimes of the age in which the Carnival originated, are also to be traced the nearly exploded diversions of cock-fighting and cock-throwing.

20. *Ash-Wednesday.*—The primitive Christians did not commence their Lent until the Sunday now called the first *in* Lent. Pope Felix III., in the year 487, first added the four days preceding the old Lent Sunday, to complete the number of fasting days to forty. Gregory the Great introduced the sprinkling of ashes on the first of the four additional days, which give it the name of *Dies Cinerum*, or Ash Wednesday. At the Reformation, this practice was abolished, "as being a mere shadow, or vain show."

24. *Quadragesima, or first Sunday in Lent.* Ercombert, king of Kent, first appointed the fast of Lent in this country, in the year 641. Succeeding generations marked the distinctions between the various foods. We find flesh to have been early prohibited during Lent, though Henry VIII. published a proclamation in 1543, allowing the use of *white meats*, which continued in force until, by proclamations of James I. in 1619 and 1625, and by Charles I. in 1627 and 1631, flesh was again wholly forbidden.

27. *Ember Week.*—So early as the third century, Ember days were observed in the Christian Church, to implore the blessing of the Almighty on the produce of the earth by prayer and fasting; and four times in each year were appointed for exercising these acts of devotion, so as to answer to the four seasons of Spring, Summer, Autumn, and Winter.

March.

16. *Midlent Sunday.*—This day received its appellation because it is the middle Sunday between Quadragesima and Easter Sunday. It is by some called the Mothering Sunday, a term expressive of the ancient usage of visiting the Mother, or Cathedral churches of the several dioceses, when voluntary offerings were made, which are now called Easter Offerings.

17. *St. Patrick.*—St. Patrick, from the eminent services he rendered the Irish in converting them from idolatry, is called the Apostle and Father of the Hibernian Church, and is the patron or tutelar saint of that island.

25. *Annunciation, or Lady-Day.*—The reformed Church cele-

brates this day as a joyful festival, from the connexion between the circumstance commemorated, and the incarnation. "Our Lady" is the ancient and popular name of the Virgin Mary.

30. *Palm Sunday.*—Palm Sunday is the Sunday preceding Easter, or the last Sunday in Lent. In the ancient Church, Palm Sunday, with the whole of the week which it commences, was held in strict devotion, and observed with greater rigour, as to fasting and humiliation, than any other part of the Lent season. The festival commemorates our Saviour's triumphal entry into Jerusalem, when branches of palm were spread before him.

APRIL.

3. *Maunday Thursday.*—Edward III. in the year 1363, appears to have been the first English monarch who introduced into this country the practice of feeding, clothing, and distributing money to indigent persons on Maunday Thursday. The custom has continued without intermission to the present period; and yearly, on this day, the Lord Almoner, or, in his absence, the sub-almoner, attends for that purpose in Whitehall Chapel.

4. *Good Friday.*—From the earliest records of Christianity, this day has been held as a solemn fast, in remembrance of the Crucifixion. Its appellation of *Good* appears to be peculiar to the Church of England. Our Saxon forefathers denominated it Long Friday, from the length of the offices and fastings on that day.

6. *Easter Sunday* is a moveable festival, held in commemoration of the Resurrection, and being the most important and most ancient in observance, governs the whole of the other moveable feasts throughout the year.

23. *Saint George.*—Edward III., at the battle of Calais, in the year 1349, joined to England's then supposed principal guardian, St. Edward the Confessor, the name of St. George, both of whom he earnestly invoked to aid his arms. The next year, the Order of the Garter was established, dedicated to St. George; and the Saint himself has, from that period, been considered as protector of England.

25. *St. Mark the Evangelist.*—On this day the reformed Church holds a festival in commemoration of the benefits the Christian religion has received from the exertions of this Evangelist.

MAY.

1. *St. Philip and St. James, Apostles.*—The Church on this day commemorates the sufferings of St. Philip, and also of St. James the Less, the first Bishop of Jerusalem.

11. *Rogation Sunday.*—Rogation Sunday received and retains its title from the Monday, Tuesday, and Wednesday immediately following it, which are called *Rogation Days*, derived from the Latin *rogare*, to beseech. The earliest Christians appropriated extraordinary prayers and supplications for those three days, as a preparation for the devout observance of our Saviour's Ascension, on the day next succeeding to them, denominated Holy Thursday, or Ascension Day. The whole week in which these days happen is

styled Rogation Week; and in some parts it is still known by the other names of Crop Week, Grass Week, and Gang or Procession Week. The perambulations of parishes are made in this week.

15. *Ascension Day, or Holy Thursday*, is the day on which the Church celebrates the Ascension of our Saviour, the fortieth day after his resurrection from the dead.

25. *Whitsunday.*—On this day is celebrated the descent of the Holy Ghost upon the Apostles, in the visible appearance of fiery cloven tongues, and in those miraculous powers which were then conferred upon them. Whitsuntide is seven weeks after Easter.

June.

1. *Trinity Sunday.*—Trinity Sunday is a festival observed by the Latin and Protestant Churches on the Sunday next following Pentecost, or Whitsuntide, of which originally it was merely an Octave.

24. *St. John the Baptist.*—The reformed Church holds a festival on this day, in commemoration of the "Nativity of St. John the Baptist."

29. *St. Peter the Apostle.*—The Feast of St. Peter was instituted in the year 813, perhaps to celebrate the martyrdom of the Apostle, who suffered at Rome about 64.

July.

3. *Dog-days begin.*—The Canicular, or Dog-days, commence on the 3rd of July, and end on the 11th of August. Common opinion has been accustomed to regard the rising and setting with the Sun, of Sirius, or the Dog-star, as the cause of excessive heat, and of consequent calamities, instead of viewing it as the sign when such effects might be expected. Of this notion, Dr. Hutton says, "the star not only varies in its rising, in every one year as the latitude varies, but is always later and later every year in all latitudes; so that in time the star may, by the same rule, come to be charged with bringing frost and snow."

25. *St. James.*—This Apostle is called James the Great, to distinguish him from the other Apostle, James, who is called the Less.

August.

1. *Lammas Day.*—Lammas is one of the four Cross Quarter-days of the year, as they are now denominated. Whitsuntide was formerly the first of these quarters, Lammas the second, Martinmas the next, and Candlemas the last; and such partition of the year was once equally common with the present divisions of Lady-day, Midsummer, Michaelmas, and Christmas. Some rents are yet payable at these ancient quarterly days in England, and they continue general in Scotland.

24. *St. Bartholomew the Apostle.*—The proper name of this Apostle was Nathaniel, by which, and not by that of Bartholomew, he is mentioned by St. John. The festival of St. Bartholomew was instituted A.D. 1130.

SEPTEMBER.

21. *St. Matthew.*—This Evangelist's festival is of great antiquity.

29. *St. Michael.*—This festival was, in the year 487, established in honour of Michael, the reputed Guardian of the Church, under the title of "St. Michael and All Angels."

OCTOBER.

18. *St. Luke the Evangelist.*—The festival held in commemoration of this Evangelist was first instituted by the Christian Church in the year 1130.

28. *St. Simon and St. Jude, Apostles.*—The two Apostles St. Simon and St. Jude are *jointly* commemorated by the Church on this day, as appears to have been the usage from the year 1091, when their feast was first instituted.

NOVEMBER.

1. *All Saints.*—All Saints, or All Hallows, in the Protestant Church, is a day of general commemoration of all those saints and martyrs in honour of whom, individually, no particular day has been expressly assigned.

4. *King William landed.*—"On the 3rd of November," says Burnet, who was in the fleet, "we passed between Dover and Calais, and before night saw the Isle of Wight. The next day, the 4th, being the day on which the Prince was both born and married, he fancied if he could land that day it would look auspicious to the army and animate the soldiers. But others, who considered the day following was Gunpowder Treason day, thought our landing that day might have a good effect on the minds of the English nation. And Divine Providence so ordered it, that after all hopes of our landing at Torbay were given up, and Russell bid me *go to my prayers, for all was lost*, the wind suddenly shifted, and carried us into the *desired haven*. Here the Prince, Marshal Schomberg, and the foot soldiers, landed on November the 5th." The Almanac is thus at variance with the historian.

5. This day is commonly called *Gunpowder Treason*, and has been kept as an anniversary commemoration of the great plot of 1605.

9. *Lord Mayor's Day.*—Our Almanacs style this the "Lord Mayor's Day," in allusion to its being the period when the chief magistrate elect of the city of London annually enters upon his high and important office. Until the 9th of May, 1214, the office of Chief Magistrate of London was held for life.

11. *St. Martin.*—This anniversary is still one of the four Cross Quarter Days.

28. *Advent Sunday.*—Advent in the Calendar properly signifies the *approach of the Feast of the Nativity*. It includes four Sundays; the first of which is always the nearest Sunday to Saint Andrew, whether before or after. Advent was instituted by the Council of Tours in the sixth century.

December.

25. ***Christmas Day.***—Christmas Day is a festival of the Church, universally observed on the 25th of December, in memory of the Nativity of our Saviour, and it has been denominated Christ-*Mass*, from the appellative Christ having been added to the name of Jesus, to express that he was the Messiah, or the Anointed.

26. ***St. Stephen.***—He *was the first martyr* to the Christian faith. Lardner and Doddridge think his death was rather the effect of popular fury than the result of a legal sentence.

28. ***Holy Innocents.***—This festival is kept to commemorate the slaughter of the Jewish children by Herod. This is also called *Childemas Day* (from Child and Mass,) on account of the *Masses* said in the Romish Church for the souls of innocents.

THE JEWISH CALENDAR OF FASTS AND FESTIVALS.

1828		
Jan. 17	1st of Shebat.	
31	15	Festival.
Feb. 16	1st of Adar.	
28	13	Fast of Esther.
29	14	Purim.
March 1	15	Little Purim.
16	1st of Nisan.	
30	15	Passover.
31	16	Morrow of the Passover.
April 5	21	Seventh day of the Feast.
6	22	Passover ends.
15	1st of Jyar.	
May 2	18	School Feast.
14	1st of Sivan.	
19	6	Pentecost.
20	7	Second Feast of Pentecost.
June 13	1st of Thammuz.	
29	17	Fast.
July 12	1st of Ab.	
20	9	Fast. Destruction of the Temple.
26	15	Festival.
August 11	1st of Elul.	
Sept. 9	1st of Tisri . .	New Year, 5589.
10	2	Second Feast of New Year.
11	3	Fast of Gedaliah.
18	10	Fast of Expiation.
23	15	Feast of Tabernacles.
24	16	Second Feast.
29	21	Feast of Branches.
30	22	Feast of Tabernacles ends.
Oct. 1	23	Feast of the Law.
9	1st of Marchesvan	
Nov. 7	1st of Chisleu.	
Dec. 2	2	Dedication of the Temple.
6	1st of Thebeth.	
15	10	Siege of Jerusalem.

CALENDAR OF THE TURKS.

1828	Year of the Hegira 1243	
January 1	13 Jomada II. .	Fortunate Days.
2	14	
3	15	
18	1st of Ryab	
30	13	Fortunate Days.
31	14	
Feb. 1	15	Day of Victory.
13	27	Exaltation of Mahomet.
17	1st of Shaban	
29	13	Fortunate Days.
March 1	14	
2	15	Barah's Night.
17	1st of Ramadan	Month of Alolenina.
29	13	Fortunate Days.
30	14	
31	15	
April 5	20	Defeat of the Turks before Vienna.
16	1st of Shawall .	Great Beiram.
17	2	
18	3	
28	13	Fortunate Days.
29	14	
30	15	
May 15	1st of Dulkaada	
27	13	Fortunate Days.
28	14	
29	15	
June 14	1st of Dulheggia	
26	13	Fortunate Days.
27	14	
28	15	
July 14	1st of Moharem	First Month of the Mussulman Year 1244.
26	13	Fortunate Days.
27	14	
28	15	
August 13	1st of Saphar.	
25	13	Fortunate Days.
26	14	
27	15	
Sept. 11	1st of Rabia I.	
23	13	Fortunate Days.
24	14	
25	15	
Oct. 11	1st of Rabia II.	
23	13	Fortunate Days.
24	14	
25	15	
Nov. 9	1st of Jomada I.	
21	13	Fortunate Days.
22	14	
23	15	
Dec. 9	1st of Jomada II.	
22	13	Fortunate Days.
23	14	
24	15	

IV. EXPLANATION OF THE "REMARKS ON THE WEATHER,"

[In the British Almanac.]

To those who have never hitherto studied the weather as a science, and are only accustomed to note its changes by popular signs and their corresponding terms, many of the forms of expression made use of in the "Remarks on the Weather" in the *British Almanac*, will possibly appear strange, and, without further inquiry, unintelligible; and little consistent, perhaps, with our previous profession of divesting the subject of learned difficulties. In no department of nature, however, can knowledge be obtained without some preliminary trouble; and as, to prevent inextricable confusion of language, the enlargement of our ideas necessarily requires new forms of expression, no method can be devised to spare the trouble of learning the meaning of such conventional terms as have been adopted for the sake of conciseness and perspicuity. We shall now proceed to give such explanations of the preceding observations as may assist those who may be disposed to extend their inquiries beyond the first cursory perusal, to apply them to useful purposes.

On the Barometer.

This instrument, as commonly met with, is very imperfectly constructed; but, nevertheless, will answer tolerably well the purposes of a weather-glass. People, in general, pay too much attention to the words *fair*, *rain*, *stormy*, &c., engraven upon the scale; and it is a common error to imagine that, as long as the mercury, or the index which marks its course, points to those expressions, the weather will be in accordance with them. The most important fact, however, to be ascertained in making an observation is, whether the mercury is in the act of rising or falling; as, if it ascends, although the index point to the word *rain*, it is a much surer indication of fine weather than when the index points to *fair*, and the metal descends. The point may generally be ascertained by gently tapping the instrument; which, freeing the mercury from a slight adhesion to the glass, allows its freer motion, and instantly shows its upward or downward tendency.

The attention should also be directed to the number of inches, and parts of an inch, engraven upon the scale, with which the level of the mercury or the index coincides: these denote the length of the column of metal which a column of the air, of equal base, at the moment is capable of supporting; and, consequently, the weight of the latter*. The average height of this column for the month is recorded in the register; as well as its range, from which the two extreme points of its course may be calculated,

* Hence is derived the name of the instrument, from two Greek words, signifying measure of weight.

to which it rarely reaches. Rain is most plentiful, and thunder most frequent, when the quicksilver fluctuates a little below the average. If it descend rapidly and considerably below this point, storms of wind are indicated, while, in proportion as it rises above the same point, the probability of fair weather increases. Settled weather must not be expected while the column of mercury is below its mean height for the month. Sudden and considerable changes in either direction are commonly followed by fair or foul weather equally transient; while a steady rise from day to day of about a tenth of an inch in twenty-four hours, or a prolonged fall in the same proportion, (either of them passing the mean point,) may generally be trusted as prognostics of continued fair weather or rain.

It may now perhaps be asked in what way the varying weight of the atmosphere is connected with the changes of the weather, and what produces this variation of weight? These are questions which have long puzzled philosophers; and many erroneous solutions have been given of the problem. By some, the increase of weight has been supposed to proceed from the quantity of water dissolved in the air: this is, however, refuted by the simple fact, that when the barometer stands highest, the air is most dry; and, on the contrary, rain generally occurs when the atmosphere is light. Others, again, have attributed the phenomenon to a centrifugal force communicated to the wind by the rotatory motion of the earth. The question is certainly very difficult and complicated; but we trust that some idea may be formed of the true cause of the rise and fall of the barometer from the following explanation.

It may be demonstrated that, owing to the unequal distribution of heat upon the surface of our globe, and the gradual decrease of temperature from the equator to the poles, the elastic fluids of the atmosphere must perpetually circulate between the colder and the hotter points; flowing from the former to the latter on the surface of the earth, and returning from the latter to the former in upper opposite currents. Now it is clear, that, if such be the fact, the Barometer weighs the pressure of these two combined currents at any given point; and as long as they balance one another, that is to say, as long as an equal quantity of air is brought by one stream to the base of the perpendicular column to what is carried off by the other from its summit, so long will their combined weights be unchanged. But should any cause, partially acting, check the course of one, without at the same time impeding that of the other, the balance will be destroyed, and the barometer, by its rise or fall, will mark the amount of the disturbance. Owing to various causes, but chiefly to the unequal distribution of water and land upon the surface of the earth, the course of the winds is by no means so regular as is assumed above, but this grand system of balancing currents certainly results; although masked in particular regions by circumstances: most of which, however, give rise to minor systems of compensating currents to which, as concerns the barometer, the same remarks will apply. Any one, indeed, may convince himself that such systems prevail in the atmosphere by watching the progress of the clouds; and in this way he will often be able to detect

more than two such currents existing together. Now, while he is watching their courses, let him for a moment suppose that the barometer is perfectly stationary, and then let him imagine one of the streams of air before him suddenly checked; the others will continue to flow on for a time in their primary directions, on account of their original impulse, and the barometer, he will conceive, must fall, because more air is carried off above it than is compensated by the current which originally maintained the balance; and as a deficiency of the aërial fluid is thus produced in one part of the atmosphere, an equivalent accumulation must at the same time result in some other part.

And we need not be at a loss to discover a cause quite competent to produce the unequal effects upon the currents of the atmosphere contemplated above. Mingled with the atmosphere of permanent gases, an invisible atmosphere of steam is constantly rising from the surface of the globe; varying in force with the temperature of the waters from which it emanates. This vapour rises unchanged till, in the gradually decreasing temperature of the air, it arrives in the upper regions at a degree of cold by which it is condensed; and becoming visible, assumes the form of clouds. In the act of condensation, however, an immense quantity of heat is set free which was previously combined with the steam in a latent form; and this, acting upon the surrounding air, expands it, and gives an additional but unequal impulse to the current in which the phenomena occur. The clouds, again, are themselves subject to evaporation, and the vapour is carried to still higher regions, where another precipitation takes place; till at length large masses of the atmosphere have the natural progression of their temperature changed, and their currents altered, or perhaps reversed. The increased temperature of the air is accompanied by a great increase in the force and quantity of the steam; the final precipitation of which takes place in the form of rain, and the atmosphere returns to its mean state through the influence of winds which restore the original balance. The order of the phenomena corresponds with the facts, that the barometer is most steady when the weather is clear, and fluctuates most with clouds and rain; and also explains the reason why, in the greater disturbances of the aërial ocean, local deficiencies of the elastic fluid are restored by winds whose force is nearly proportioned to the vacuum which they supply.

The connexion between the motions of the permanent atmosphere and the variable atmosphere of steam which mingles with it, and is perpetually acting upon it, leads us naturally to make a few observations

Upon the Hygrometer.

In the preliminary remarks of the Almanac, we have already stated that this instrument is a contrivance by which the degree of temperature is readily noted, at which moisture begins to be deposited upon a cold body: as we see, in summer, in the familiar instances of a bottle of wine brought from a cellar, or a decanter of water fresh filled from a well. This degree is called the *dew-point*, as it is also

the temperature of grass upon which the dew first begins to form in a clear evening. Tables have been prepared, and generally accompany the hygrometer, by the inspection of which, after having found the dew-point, the elastic force of the steam may be ascertained, the expansion which it produces in the air, and its weight in a cubic foot.

When consulted as a weather-glass, with a view of predicting the greater or less probability of rain or other atmospheric changes, two things are to be principally attended to—the difference between the dew-point and the temperature of the air, and which is denoted in the register by the term *degree of dryness*, and the variations of the dew-point. In general, the chance of rain or other precipitation of moisture from the air, may be regarded as in inverse proportion to the degree of dryness: but in making this estimate, regard must be had to the time of day at which the observation is made. In settled weather the dryness of the air increases with the diurnal heat, and diminishes with its decline, for the dew-point remains nearly stationary: consequently, a less difference at morning or evening is equivalent to a greater in the middle of the day.

But to render the observation most completely prospective, regard must be had to the movement of the dew-point, and its accordance with the *mean* of the month, or rather with the *mean* of the prevailing wind, as registered in the monthly tables. As the elasticity of the vapour rises above or falls below the mean, so does the probability of the formation and continuation of rain increase or diminish. An increasing difference, therefore, between the temperature of the air and the temperature of the point of condensation, accompanied by a fall of the latter, is a sure prognostic of fine weather, while diminished heat and a rising dew-point infallibly portend a rainy season.

A sudden change in the dew-point is generally accompanied by a change of wind: but the former sometimes precedes the latter by a short interval, and the course of the aërial currents may be anticipated before it affects the direction of the weather-cock, or even the passage of smoke.

Experience has amply proved that the hygrometer thus applied is more to be depended upon than any instrument that has yet been contrived. Even when its indications are contrary to those of the barometer, reliance may be placed upon them; but simultaneous observations of the two most usefully correct each other. The rise and fall of the mercurial column are, as we have just shown, primarily dependent upon the state of the upper regions of the atmosphere with regard to heat and moisture. Local alterations of its density thus partially brought about are mechanically adjusted, and the barometer gives us notice of what is going on in inaccessible regions. A rise in the dew-point, accompanied by a fall of the barometer, is an infallible indication that the whole mass of the air is becoming embued with moisture, and copious precipitations may be looked for. If the fall of the barometer take place at the same time that the point of precipitation is depressed, we may conclude that the expansion which occasions the former has arisen at some distant point, and that wind, not rain, will be the consequence.

But when the air attains the point of precipitation with a high barometer, we may infer, that it is a transitory and superficial effect produced by local depression of temperature.

Upon the Thermometer.

The mean temperature of the month recorded in the register is calculated from the daily highest and lowest of two register thermometers, placed in a situation skreened from the sun and the aspect of the sky. The best thermometers for this purpose are those upon Rutherford's construction: one of which, formed of mercury, pushes a small pin of iron wire before it, which it leaves at the highest point; and the other, of spirit, draws after it a small index of glass, which remains at the lowest. In addition to the mean temperature, and the highest and lowest points, or range of the thermometer in the shade, the indications are given of a register thermometer, covered with black wool, and placed in the sun, and of another placed at night upon a plat of short grass, and exposed to the full aspect of the heavens.

It is well known to the agriculturist and gardener, that, without the direct influence of the sun, whatever may be the temperature of the air, the fruits of the earth seldom come to perfection. It is therefore of importance to know the force of this important agent, and the modifications to which it is exposed. The black thermometer registers this effect, and the Almanac shows both the mean and extreme difference between such a thermometer and another placed in the shade.

Of not less consequence is it to know the cold produced at night from the radiation of heat from the surface of the earth, in situations where its passage is uninterrupted to the clear sky. This, in calm, unclouded weather, always reduces the temperature of filamentous substances, such as grass, considerably below that of the air. It is this depression of temperature which is the cause of dew. The surfaces of vegetables become cooled, by this radiation of heat into space, below the dew-point, and the vapour of the atmosphere is deposited upon them. Dew is never formed upon grass on cloudy nights, or in sheltered situations.

From the particulars of the diary, where both the average and extreme effects of this action are recorded, it will be found that vegetation is liable to be affected at night, from the influence of radiation, by a temperature below the freezing point of water ten months in the year; and that even in the two months July and August, the only exceptions, the radiant thermometer sometimes falls to 35°.

The formation of dew is one of the circumstances which modify and check the refrigerating effect of radiation; for as the vapour is condensed, it gives out the latent heat with which it was combined in its elastic form, and thus prevents an excess of depression which might, in many cases, prove injurious to vegetation. A compensating arrangement is thus established, which, while it produces all the advantages of this gentle effusion of moisture, guards against the injurious concentration of the cause by which it is effected.

The excess of either solar or terrestrial radiation is injurious to many tender plants and flowers, and for this reason the careful gardener guards against them by mats and screens. This practice was established long before the theory was known, but the theory might now suggest many improvements in the practice. This is one of the points to which, in future years, we shall endeavour to direct the attention of practical men.

On the Influence of the Moon.

That the different phases of the moon have some connexion with changes in the atmosphere is an opinion so universal and popular, as to be, on that account alone, entitled to attention. No observation is more general, and on no occasion, perhaps, is the almanac so frequently consulted as in forming conjectures upon the state of the weather. The common remark goes no further than the fact, that changes from wet to dry and from dry to wet generally happen at the changes of the moon. When to this result of universal experience we add the philosophical reasons for the existence of tides in the aërial ocean, we cannot doubt that such a connexion exists, and that the moon exerts a considerable influence upon the currents of the atmosphere, according to her position. The subject, however, is involved in great obscurity, and is one which can only be elucidated by long and careful observation.

V. THE CELESTIAL PHENOMENA OF THE YEAR.

It is impossible for any one, learned or unlearned, to live through the year, or even through the month or the day, without noticing the influence which the changing positions of the heavenly bodies have upon his own comfort, and upon the state of all things around him. This is the book of wonder which, at the first dawning of reason, both individuals and nations attempt to read. It is always open; no perception is so dull as not to be able to trace its greater lines; and, from the magnitude of these, and the unerring certainty of their recurrence at their regular times, and the changes which they produce upon every thing that grows or lives, it is difficult to imagine the existence of a mind so incurious as not to form to itself some theory of their nature and causes.

In a country like England, where the changes are so frequent, and the contrast so striking, the subject is constantly before every body; and, be it in city or on common, in hall or in hut, the season, the day, and the weather, are among the very first topics of conversation. If even, in the centre of a crowded city, where nature is, as it were, excluded, and man and art rule supreme,—if there, amid all the displays of manufacture, all the bustle and occurrences of society, and all the news of nations, the phenomena of the day and the year can claim the attention,—how much more must they do this, to the people who are scattered over the country, and

spend most of their time in the open air? To all these, that volume, of which the Almanac is the index, is a daily book; to many, and especially to those who have not had the advantages of education, it is the only book.

A subject, the appearances of which force themselves upon the notice of all, but of which the philosophy lies in the depths of science, must be the means either of great good, or of great evil; for, upon any subject that interests the mind powerfully, if knowledge be not planted, superstition is sure to spring up of its own accord. That he who knows nothing may be made to believe any thing, is found to be a maxim of but too general truth; and upon no subject has its truth been more frequently verified than upon the one under consideration. In the early ages of the world, and before revelation had substituted a moral and intellectual system for an ideal and superstitious one, the phenomena of the year, and more especially the luminaries that are attendant upon, and produce these phenomena, were acknowledged and worshipped as gods—substituted in the place of Him whose instruments they are, and who implanted in them those properties, and assigned them those motions, in consequence of which they produce their effects. In moulding them for this purpose, there is no doubt that the artful portion of society employed all their cunning, in order to enslave the minds of the multitude, and enable themselves to profit by the darkness which they occasioned. But if the subject itself had not been the best adapted for superstition, the very cunning which made use of it would have necessarily chosen that which answered its purpose better. So far, however, as research can be made into the early history of mankind, the sun, the moon, and such stars as have any thing remarkable in their appearance, have been the first objects of adoration; and that adoration has always been the more marked, in proportion as the appearances of the luminaries have been the more varied. We find it much more in the Laplander and the inhabitant of Greenland, who have their months of summer's day and winter's night, than we do in those tropical countries where the day is always of nearly the same length, and where flooding rain and burning drought are the chief phenomena that vary the year.

But the superstitious adoration of the celestial appearances is not confined to the early and barbarous state of nations. When this superstition was expelled from religion, and the luminaries were deprived of their godship, they did not at once lose the whole of their consequence; but held their place as the agents and arbiters of human destiny. Upon this arose a system of superstition, which left not a thing in nature, a member of the human body, or an event of human life, upon which it did not lay hold. The individual bodies had each their special virtues, their good or their bad influence; these were modified by the grouping of the stars into constellations, and from the positions of the sun, moon, and planets among these, there arose other compound influences, till the system became as complicated as it was ridiculous. So firmly was this believed at one time, that nothing could be done

or undertaken without a previous consultation of the stars, to find out whether it was their pleasure that the issue should be prosperous; and the aspect of the stars at a man's birth was admitted to have ten times as much influence upon his success in life, as his talents, his education, and his conduct. Indeed, it had much more; for if it was not the pleasure of the stars,—and the revealing of that was committed entirely to the astrologer,—the man could not act, or be educated, or even born. If one wished to know whether any substance would answer any purpose, he not did try it, he consulted the moon; and if any thing was lost, search was not made for it, the moon was questioned through the medium of the astrologer, who always contrived, by his confederates, to be in possession of as many lost things as kept up the credit of the craft.

By this most absurd system of superstition, the reason and common sense of the people were rendered completely useless; and, which was far worse, the foundation of morality was completely taken away,—because, if the success or the failure, the good or the bad of human actions, did not depend upon men themselves, but upon an unerring destiny, to be read in the aspect of the stars, there was an end of all virtue and attempting to do rightly; because, as the destiny was fixed, no effort on the part of the man could alter it,—indeed, he could make no effort, unless that was also set down in the aspect of the heavens at his nativity.

When superstition had thus destroyed both the intellect and the morals of mankind, the absurdities into which it led them were endless; and as any subject, in order to be wondered at, requires only to be incomprehensible, the delusion became very general. Nor is it yet eradicated. Language contributes a little to this: even the well-informed talk about "stars" and "destinies;" and those who have little information believe that these words have a literal signification. The disposition which all people have to pry into the future, also tends to perpetuate this superstition. The proper key to the future is induction from the past; but the proper use of that, supposes habits of observing and reasoning, which cannot yet be regarded as general among the people of any country; so, they who cannot anticipate the future, by connecting it with the present and the past, still follow after the delusions not only of astrologers—moon-and-star men,—but fortune-telling impostors of all sorts; and the delusion is helped to be perpetuated by those publications in which the nonsense of astrology is still retailed to the public.

These circumstances render it necessary that the phenomena of the year should be explained in the most simple yet philosophic manner,—that the real causes of those phenomena should be made palpable to the most ordinary capacity; and that it should be plain to every one, that there is no mystery in the matter,—that the revolutions of the heavenly bodies produce the appearances of the seasons, and nothing more. The motions of these have, in fact, no more influence upon the conduct and the destinies of mankind than the motion of a river toward the sea, or the fall of a stone to the ground when it is not borne up by something that can support its

weight; and it would be just as rational to calculate the nativity of a man from the motion of the Thames towards the sea, as from the motion of the moon or the planets. Nay, the revolution of a coach-wheel upon the road has just as much to do with human destiny as the motion of the heavenly bodies; and when, in its revolution upon the dial, the minute-hand of a clock passes over the hour-hand, that has just as much influence upon the fate of nations or individuals as an eclipse of the sun or the moon.

With the exception of the light and heat produced by the sun, and the light of the moon, and still fainter illumination of the stars, there is no reason to infer that the celestial bodies exert any influence, other than that of gravitation, upon the earth itself; and as their influence is wholly of a physical nature, it can have no effect whatever upon the minds or conduct of men, any more than can be produced by the natural or artificial motion of any other substances. So far as the luminaries make men more or less comfortable at the time, they have an influence,—as the genial temperature of the day raises the spirits in the same way, and to the same extent that they are raised by a similar temperature of a common fire, or the light of the moon enables a man to find his way at night, just in the same way as he would find it by the same degree of lamp-light; but beyond these physical effects, there is, and there can be, nothing. If the luminary is at the same distance, shines for the same length of time at the same height above the horizon, it matters not in what sign of the zodiac, or in what part of the heavens it may make its appearance,—any more than it signifies whether the fire by which one is warmed, or the lamp by which one is lighted, is on the east or the west of St. Paul's; and it would be just as philosophical to calculate the future destiny of a man from the "house" in which he happened to be born, as from the "houses" of the planets at the time of his birth. Indeed, it would be much more so; for if *intelligence and good sense* happen to be *lords of the ascendant* in the house of the parent, they are very rational grounds for predicting the future welfare of the child; and so, also, ignorance, dissipation, and vice, in the parent, are far more malignant aspects for the infant that has the misfortune to be born under them, than any configuration which either the stars, or any thing else out of the family can assume.

There was a time when, not the people merely, but the titled and the learned, were thrown into the greatest consternation by an eclipse of the sun or moon, or the appearance of a comet or the aurora borealis. And why? Because they are of comparatively rare occurrence; and when mankind do not know the rational cause of any thing, they always form to themselves a superstitious one. A candle is to the inmates of a room at night what the sun is to the inhabitants of the earth during the day; it gives them light, and, if the flame be large enough, it gives them heat. If, too, there be a mirror upon the wall, and the candle be so placed, as that the light reflected by the mirror is thrown into a room which the candle does not illuminate, the mirror will give a sort of moonlight to any one who happens to be there. Now, if one of

the family were to stand between another of the family and the candle, the candle—their sun for the time—would be just as much eclipsed to the one from whose sight it were hidden, as the sun of the world is when the moon comes between it and the earth; and so, also, if any one placed himself in such a manner, as that his shadow fell upon the mirror, that mirror—the temporary moon of those in the dark chamber—would be just as much eclipsed, as the moon of the world is when the earth comes between it and the sun, deprives it of the light of that luminary, and prevents it from reflecting that light to the earth. Well, is there any person in his senses that would say, that because one of a family had come between another and the candle, or between the candle and the looking-glass, that some direful calamity would befal the family, or that they would inevitably have a brawl or a law-suit with the folks at the next cottage? and yet the consequences just mentioned are precisely of the same nature with the eclipses of the sun and moon; and from their nearness they have much more effect on the inhabitants of the cottage than the celestial ones can have upon the inhabitants of the earth. A temporary want of light is the whole effect in both cases; and as that of the celestial eclipse is never so complete as in the case of the candle and the mirror, it is, except as a matter of curiosity, or as fixing a point of time, of much less consequence than the other.

With regard again to a comet, it is much the same as if one were to come into the room with a burning torch or taper, and then go out again; an occurrence which could do no harm, unless the bearer of the torch were to run against somebody, or set fire to the house. So also, if the comet be a solid substance, and if the light which it emits be of the burning kind, (for comets are so distant, and continue so short times, that we are unable to be certain about their nature,) it might, if it came in contact with the earth, shatter it, as a cannon-ball shatters a house, or burn it as a red-hot shot or a shell does; but as long as we are out of its way, we are just as safe from harm, as we would be if we stood on a high cliff and saw rockets let off ten miles at sea. A rocket let off in Vauxhall Gardens has just as much influence on the fate of nations and individuals, as all the comets that ever appeared; and if the stick of the rocket happened to fall upon anybody, it would have a good deal more.

There was a time when the "Jack-o'-the-lantern"—inflammable air over a fen, a piece of rotten wood, or a putrid fish—both of which, in a certain state of rottenness, give out a gas which becomes luminous, was accounted as something alarming; but as every bungler in chemistry can now produce the same appearances whenever he pleases, they have ceased to be regarded with any degree of apprehension.

All these follies, with which people wasted their time, disturbed their imaginations, and made themselves uneasy, resulted from the want of a little—a very little—sober and independent thinking. Effects must be similar to their causes; and every subject which is

matter cannot affect the mind in any other way than by affecting the body. The arsenic which lies buried a mile under ground, or that which is contained in the stores of the Apothecaries' Company, is just as deadly in its nature as that which has by accident, crime, or madness, got into the human stomach. But while it remains there it poisons nobody; and though, by continually alarming himself about it, a man of weak mind might, in time, bring himself to believe that it would; and though this should injure his health, or even frighten him to death, the arsenic would be quite innocent of the matter. What would even the most ignorant man now living think, if he were told that if a pinch of gunpowder were to be stolen from the stores of the Grand Signior, brought to London, and burned according to the rules of art, it would instantly blow up all the magazines in Turkey? Well, there was a time when the belief of such an influence in powder was far more prevalent than that of the influence of the appearances of the year upon human life and fortune is now.

The sun, the moon, and the planets and stars, are merely masses of matter—inanimate, and, of course, without any power of thinking and acting as wholes—though they may have different classes of growing and living beings upon them, in the same way that the earth has; and it may be that while we are frightening ourselves with the changing phases of the moon, the people on that luminary are in the same alarm at our planet. But bodies placed at so great a distance from each other as the planets and stars are can have no influence upon each other, saving that of gravitation, and light and heat, which will, of course, change with every change of position and distance. As, if the moon be far north in the sky, it will be longer "up," or above the horizon, to us in these northern latitudes. If it be near to the sun, on the eastern side, it will shine in the early part of the night; if it be near, on the western side, it will shine in the latter part of the night; if it be directly opposite to the sun, it will, if just as far north in the sky, rise at sunset and set at sunrise;—if it be farther north, it will rise before the sun sets, and set after the sun rises;—if south of the sun, it will rise after sunset, and set before sunrise;—and, if it be in the same part of the sky, with respect to east and west, as the sun, it will rise and set at the same time with that luminary, and not be seen, unless it be also in the same part of the sky with regard to north and south, and in that case it will come, in whole or in part, between the earth and the sun, according as their places are exactly or only nearly the same, and occasion a total or a partial eclipse of the sun. All the changes of the moon, with regard to shape and time of appearance, take place in every lunar month, from one new moon to another. All the variations of appearances, eclipses, and other phenomena, recur in a period of about nineteen years; and any of them may be foretold by one who has a knowledge of astronomy.

There are some other particulars in the moon's appearance, upon which superstition is still apt to lay hold, and predict, if not

something as to human life, at least something about the weather, which is a fertile subject for imposture. One of them is the position of the cusps, or points, of the new moon when first seen. These are always both at equal distances from the sun, and, of course, their standing straight, or leaning backwards, or forwards, depends upon the distance that the moon is north or south of the sun. Any one can see this by a very simple experiment. Take an orange, or an apple, or anything round, and hold it in your left hand between you and the candle, only as far to the left as that the light will shine on a part of it, in the shape of a new moon. This moon may be much narrower or broader, according as you hold it nearer or farther from the line between you and the candle. If you hold it just as high as the candle, the line of the points will be upright; if you move it higher than the candle, the line will lean backwards, more and more as it is raised; and if you move it down lower than the candle, the line will lean forward, more and more as it is lowered.

Two other peculiarities of the moon that occasion a good deal of speculation among those who are ignorant of the causes, are, "the harvest moon" in September, and "the hunters' moon" in March; the former of which, when near the full, rises for several nights at nearly the same hour, and the latter, at the same age, is equally remarkable for the difference between the times of its rising. The moon moves nearly to the same distance from the sun every day, but it moves in a path the one half of which is much nearer the north than the other; and this is the case also with the apparent annual path of the sun, that luminary appearing much nearer to the north in summer than in winter. Thus when the moon is moving northward at the most rapid rate, it escapes from the horizon northward, and rises earlier; and when it moves southward at the most rapid rate, it approaches to the horizon, and sets earlier. The full moon can be in the former position only in September or October, and in the latter in March or April; and thus the harvest and hunters' moons are occasioned.

Such are the principal changes in the moon's appearance; they are all to be explained upon the simple facts of the motions of the moon and the earth; and, therefore, they neither have, nor can have, any of those influences which superstition, the child of ignorance, ascribes to them.

The planets being all much more remote from the earth than the moon is, and having little difference in their appearances, saving what arises from their own motions and that of the earth round the sun, have little about them that claims attention as connected with the appearances of the year. Influence upon the earth, upon the changes of the seasons, or upon any thing that in any way affects the comfort or the ordinary pursuits of mankind, they have none whatever; and, therefore, the explanations of their appearances and motions may very properly be left to the study of astronomy.

Thus the only thing that remains, in order to complete this

simple notice of the phenomena of the year, is some account of the annual appearances of the sun—that grand source of light and life and enjoyment to all the animal and vegetable tribes.

In order that the whole may be clearly understood by those who have not much knowledge of geography and astronomy, it may not be improper to begin with the apparent revolution of the heavens, every day, as arising from the real rotation of the earth. When a round body, such as an orange, or a billiard ball, is made to whirl round in the same place upon the table, by spinning it, although there may be no mark upon it, one can easily perceive that there is one point in the middle of the upper part of it, round which all the rest turns, just as a wheel turns upon an axle; and if one could see it from below, there would be found a similar point in the middle of the under part, round which the whole would be seen to turn. These two *fixed* points would be the *poles* of the ball or orange; and if we imagine a line drawn from the one, through the centre to the other, that line would be the *axis of rotation*. The earth turns round from west to east every twenty-four hours, in the very same manner; only, instead of being supported upon any thing like the ball or the orange, it is kept in its place by the mutual attraction between it and the sun. If we make a little mark, any where upon the ball, and imagine ourselves to be living there, the candle which stands still upon the table would appear to move in the contrary direction to that of the ball. If the candle be held just as high as the middle of the ball, the mark, wherever we place it, (say in the upper part, half way to the centre or pole,) will pass one half of its revolution through the light of the candle, and the other half not. If (the mark being still in the same place) the candle be raised higher up than the centre of the ball, or (which will have just the same effect) if the ball is put lower down than the candle, the mark will pass through the light for a longer time of each rotation than it is in the dark; and if the candle be held further down than the centre of the ball, or the ball raised higher than the centre of the candle, the mark will pass through the light for a shorter time than it does through the darkness on the other side. Also, the increase of light in the former case, and the decrease in the latter, will be the greater, the farther the centre of the ball is below or above the candle, and the nearer the mark is to the pole or point round which the upper part of the ball seems to turn. If we call the upper pole of the ball the *north pole*, the mark (rather more than a third of the upper half from that pole) any place in the British islands; and suppose the ball to be the earth, and the candle the sun, we have before us the whole principles of the motions that produce the changes of the seasons.

We have only to imagine a level plane, or even flat surface, to pass through the centre of the sun; that the axis upon which the earth turns round is always *upright* to that plane; that the *orbit*, or path, which the earth moves in during the year, lies, one half of it, above the plane, and the other below; and that this orbit has an

inclination, or *makes an angle* of about twenty-three degrees and a half with the plane each way; then if we further imagine that the north pole of the earth is uppermost, and that the earth, in moving round the orbit from west to east, performs as many rotations as there are days in a year, we shall have the whole means of explaining the changes of the seasons.

If we imagine that the point at which the earth is highest above the level plane passing through the centre of the sun, is immediately before us and nearest to us; then the point at which it meets the level plane in descending will be the one farthest to the right of the sun; that where the earth is farthest below the level plane will be the one at the greatest distance, and right before us; and that at which the earth meets the level plane in ascending toward us, will be the one most remote from the sun on our left hand.

The first of these points will be the shortest day to those in the northern hemisphere; and for the quarter of a year from that to the second point, the day there will always be less than twelve hours, and the night more.

The second point will be the vernal equinox,—equal day and night in the spring; and in the quarter from thence to the third point, the days in the northern hemisphere will always be more than twelve hours, and the nights less.

The third point will be the midsummer, or longest day, in the northern hemisphere; and in the quarter from that to the fourth point, the day will be again more than twelve hours, and the night less.

The fourth point will be the autumnal equinox,—equal day and night in autumn; and in the quarter from thence to the point at which we supposed the earth to set out, the day will be, as in the quarter first noticed, less than twelve hours, and the night more.

It is evident, that on the half of the surface which is round the other, or south, pole, the appearances of the seasons will be quite reversed.

Thus, in the whole of the half that lies above the level plane, the day will be shorter than the night: it will decrease during the first part of that half, and lengthen again, at the same rate, during the second. Also, in the whole half below the plane, the day will be longer than the night. It will lengthen during the first part, and shorten at the same rate during the second.

On the earth, the motion which causes the lengthening and shortening of the day is not seen, except by all the stars that are round the heavens coming to the south in succession at midnight; and the sun being farther north at rising and setting, and higher at mid-day when the day lengthens,—and the reverse when it shortens.

The lengthening and shortening are not at the same rate at all times of the year; for it is not the absolute distance of the earth from the level plane, but the change of distance between one day and another that makes the difference of their lengths. Now, if any one take two rings or hoops of any kind, and put the one across the centre of the other, a little obliquely, he will see that

they recede from each other most rapidly at the two points where they cross; and that, mid way between these points, there is a considerable space where they are nearly at the same distance. Therefore, the days must lengthen and shorten most rapidly at the equinoxes, and be for some little time of nearly equal lengths at midsummer and mid-winter*.

The different duration of the day, and the different height of the sun, are the causes of those variations of natural heat which so beautifully diversify the year.

Table of the principal Elements of the Solar System.

Names of the Planets.	Duration in Days of their sidereal Revolutions.	Mean Distances from the Sun.
Mercury	87·969	0·387
Venus	224·701	0·723
The Earth	365·256	1·000
Mars	686·980	1·524
Vesta	1335·205	2·373
Juno	1590·998	2·667
Ceres	1681·539	2·767
Pallas	1681·709	2·768
Jupiter	4332·596	5·203
Saturn	10758·970	9·539
Uranus	30688·713	19·183

Names of the Planets.	Diameters of the Planets, that of the Earth being 1.	Volumes that of the Earth being 1.	Time of the Rotation of the Planets.	Table of the Masses of the Planets, that of the Sun being 1.
The Sun	109·93	1367031	25·500	1
Mercury	0·39	0·06	1·000	$\frac{1}{2026815}$
Venus	0·97	0·9	0·973	$\frac{1}{401871}$
The Earth	1·00	1·0	0·997	$\frac{1}{324538}$
Mars	0·80	0·5	1·027	$\frac{1}{3243380}$
Jupiter	11·56	1281	0·414	$\frac{1}{1070·3}$
Saturn	9·61	995	0·428	$\frac{1}{3513}$
Uranus	4·26	80	.....	$\frac{1}{17918}$
The Moon	0·27	$\frac{1}{24}$	27·322	$\frac{1}{28000000}$

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* The book which one is reading affords a very simple illustration of this. Let it be opened as much or as little as one pleases, the *edges* of the leaves are everywhere at the same distance, while the *ends* are more and more distant the farther they are from the joining.

VI. NATURAL APPEARANCES OF THE ENGLISH YEAR.

JANUARY.

JANUARY, in England, is usually the coldest month. The increasing influence of the sun is as yet little felt in our climate. Upon an average, St. Hilary's day, the 14th, has usually been found the coldest of the year. The ordinary appearances of this month are extremely interesting. The small rivers and ponds are frozen over, and the gliding streams become a sheet, as of solid marble ;—the snow clothes the ground with its beautiful robe of whiteness ; and the hoar frost dresses up the trees and hedges with crystals that sparkle like the most brilliant jewellery.

To an active mind Nature always presents abundant food for curiosity. But winter brings the observer acquainted more minutely with the habits of many living creatures ; and every inquiry makes him wiser and better in discovering the various operations of the Creator's bounty. It is in winter that the feathered race become more immediately dependent on man. Who has not had his pity excited for the red-breast that comes into our doors and windows for his crumbs, and whose note is doubly beautiful from the contrast of its cheerfulness to the dreariness around ? When the earth is as hard as iron with the frost, or the snow conceals the ordinary food of birds, the larks take shelter in the warm stubble ; the blackbirds and thrushes nestle in the hedges ; the fieldfares, that come to our climate from colder countries, get into the neighbourhood of towns ; the little wrens find some snug hole in a thatch or hay-rick ; and the sparrows and chaffinches fly in clouds into the farm-yards, to watch for the scanty pittance of the barn-door. Providence has given food for these various tribes in the haws and the ivy-berries, but their supply is sometimes exhausted before the return of spring, and they resort to man for succour and protection.

There are many animals which lie in a torpid state throughout the winter. The frog and the snake are quite benumbed, and continue, as it were, dead till the return of warmth. Some sleep wholly during the inclement season ; and others,-who have laid up provision for the period of cold, keep close within their retreats. The dormouse is of the one species ; the squirrel and field-mouse of the other. Animals in a state of sleep require less nourishment than those which are active.

The snow, however cold it may appear, is a warm covering for those plants which, dying down to the root in autumn, shoot out into life and beauty in the spring. Winter is the season for the repose of the vegetable world ; and those who are concerned in forwarding the work of nature, can do little at this period. The business of the plough and the spade is generally suspended. The farmer mends his hedges and draws on his manure ; and the gardener trains his trees. Even at this dreary season the gardens have some ornament left. The black hellebore, (called also the Christmas rose,) and the sweet coltsfoot, are often in full flower. Towards the end of the month

the days perceptibly lengthen, and the temperature increases. The thrush and the blackbird may be heard on fine days with a firm and cheerful note; whilst the wren, the hedge-sparrow, and the red-breast are loud in the leafless trees. Linnets congregate. The lambing season commences, and the flocks require all that tenderness from man which has rendered the occupation of a shepherd so associated with kindly feelings.

February.

Winter seldom leaves us during this month. We have frequently frost and snow; and more generally chilling rains and sleet, which are even more uncomfortable than the direct severities of January. Yet occasionally a few fine days present a singular contrast of brilliancy and clearness.

The most obvious appearance of the approach of Spring is the lengthening of the days. The sun begins to have considerable power. Sudden thaws often take place, which fill the rivers, and inundate the low country around. February was called by our ancestors "Fill-dyke." But the frost as often returns. Indeed the month may be generally described as one of alternate changes;—sometimes exciting us with much of the beautiful promise of Spring, and at other times depressing us with some of the gloomiest appearances of Winter.

But however uncertain may be the general character of February, the indications of the renovation of Nature are pretty constant. The flower-buds are generally disclosed on the elder-trees;—the hazel begins to put forth its long flowers;—and the leaves of the gooseberry and currant bushes of our gardens become visible about the end of the month. The little crocus, with its sparkling yellow flowers, and the snow-drop, of pearly whiteness, become frequent; and the polyanthuses and hepaticas enliven the garden in mild seasons. The daisy, towards the end of the month, is found in sheltered fields. Immediately after the frost is moderated, the sap ascends in trees.

The approach of Spring sets the farmer to his work. He ploughs up his fallows; sows spring-wheat and rye, beans and peas; repairs hedges; drains wet lands; and plants those trees that delight in moisture, such as willows and alders. Though one month may be more busy than another, there are no times of idleness for those who have to follow the course of the Seasons.

March.

There is an old proverb,—"A bushel of March dust is worth a Monarch's ransom." Our ancestors were careful observers of the influence of the weather upon the operations of husbandry; and in this short sentence they fully expressed the value of a dry March. A month of such weather removes the too great moisture which the rains of February have left us; whilst it mellows the earth for the reception of seed, and enables the farmer to get it in early. A late spring is generally a great blessing; for the succeeding harvest is in most cases abundant. There is little to be apprehended in

such seasons from blights and insects; and the swelling buds are not too prematurely brought forward, to be exposed to the severity of those frosts which so commonly render faithless the early promise of the year.

The activity which the farmer must exercise in this month, to sow his barley and oats, has an example in the motions of all the animal creation. The rooks are noisily employed in the building and repair of their nests; the fieldfares and woodcocks, whose movements however regular are yet mysterious, return to the countries from which they arrived at the commencement of winter; the willow-wren and the stone-curlew come to us, and the shrill cry of the latter may often be heard mingling with the owl's hoot, by the nightly traveller; domestic poultry lay eggs and sit; the wild pigeon cooes in the woods. One of the most delightful appearances of the season is the sportiveness of the lambs, in the sunshiny days; and a no less pleasing indication of returning warmth, is the coming forth of bees from their wintry hives, to remind us that the honied flowers are beginning to show their heads again. In our gardens the wall-flower cautiously puts on its rich livery;—the heart's-ease (celebrated all over Europe by six or seven endearing names) shows its beautiful velvet spots; and the great scented jonquil, the crown imperial, and the narcissus are in full splendour. The mezereon, with its pink flowers and leafless bushes, is now highly ornamental.

In the hedges, towards the end of the month, two of the most lovely and fragrant of flowers offer themselves to our admiration. The early violet, commonly called the March violet, gives the most delightful of all scents; and from its humble and obscure retreat in some weedy bank, affords a perfume to the air that passes over it; while the primroses are seen sprinkled over the grassy slopes, peeping forth with a delicate lustre from their green leaves. There is another common flower, and a much neglected one, which this month produces,—the daffodil. Shakspeare, in a charming description of flowers, enumerates

——— daffodils
That come before the swallow dares, and take
The winds of March with beauty.

The pilewort, and the red deadnettle become also abundant in the fields. The apricot and peach-blossoms exhibit their delicate colours on the garden walls; and the early sulphur butterfly, and the red butterfly, spread their wings in the still precarious sunshine.

April.

There is nothing in the appearances of nature, which strikes even the most careless observer with such pleasure and surprise as the suddenness with which, in this month, the trees put on their green and flowery garments. The name of April is derived from a word which signifies *to open*. The fickleness of its days—its light clouds pouring out their refreshing showers, and then passing away to give place to the invigorating sunshine,—is the cause of this sudden

opening of the richness of the woods and gardens, which almost justifies the common phrase, that "we may now see things grow."

The cherry-trees are now sprinkled all over with their white blossoms; while the apple-trees are even gayer, with their more varied colours. The lilac exhibits its clusters of delicate flowers; the honeysuckle twines its rich green tendrils, and its sweet-scented blossoms around the cottage-porch, or the little bower; and the laburnum drops its golden chains in graceful profusion. The stock gilliflower, and the star anemone, are added to the garden flowers. Every thing is bright; and every thing is full of promise.

The Spring is a season of gladness; and it does not want an echo of the universal joy. The singing of birds is now general. The rambler of the fields is in this month first startled and pleased with the voice of the solitary cuckoo. The ordinary songs of birds may pass over the ear without exciting any particular emotion; but the note of the cuckoo always calls up some association either of pleasure or melancholy, and carries our thoughts back to the Springs that are passed, by a chain of connecting remembrances.

Toward the end of this month the swallow tribe return to pass the summer with us. We are almost in complete ignorance as to the habits of these birds in the winter. With the swallow come also the remaining birds of passage, or they arrive soon after,—the martin, the swift, the black-cap, the redstart, and the yellow willow-wren.

The meadows begin to assume the most variegated appearance. The daisy is still bright; and the cowslip, the crowfoot, and the harebell, are dotted with it over the green turf. Of the less favourite field-flowers we have now the lady's-smock, the wood-anemone, the dandelion, the wood-sorrel, and the wild yellow tulip, in profusion.

May.

It is now that the leafing of the trees is almost perfected. The woods and clumps of forest trees present an impenetrable shade. Every tree has its distinguishing characteristic:—

> No tree in all the grove but has its charms,
> Though each its hue peculiar; paler some,
> And of a wannish gray; the Willow such,
> And Poplar, that with silver lines his leaf,
> And Ash, far stretching his umbrageous arm;
> Of deeper green the Elm; and deeper still,
> Lord of the woods, the long-surviving Oak.
> Some glossy-leav'd and shining in the sun,
> The Maple, and the Beech of oily nuts
> Prolific, and the Lime at dewy eve
> Diffusing odours: nor unnoted pass
> The Sycamore, capricious in attire,
> Now green, now tawny, and ere autumn yet
> Have changed the woods, in scarlet honours bright.—Cowper.

The grass now springs up into strength and thickness; while the buttercups, with their rich glow of yellow, relieve the eye from the universal green of this time of luxuriance. The broom, the favourite of the Scotch poets, spangles the commons and wastes with its golden brilliancy. The young corn covers the arable grounds with its scattered and waving shoots; and the farmer, as he reposes for a few weeks after his spring-tide toil, looks forward with anxious hope to the season of maturity. The hedges begin to be covered with the beautiful and fragrant hawthorn, whose blossoms, as in honour of the month, are called May; the horse-chestnut is white with its abundant blossoms; and a variety of sparkling flowers are creeping about their banks, to supply the place of the primrose and violet of April. In the fields we have in flower the orchis, the celandine, the blue-bottle, and the ragged-robin, in addition to those already noticed. In the gardens, the various sorts of narcissus, the veronica, the early peony, the columbine, the lily of the valley, the purple rhododendron, the scarlet azalea, the monk's hood, and the oriental poppy, are in flower—some partially, others abundantly. The tulips, of infinite variety, are now the chief care of the florist; and prices are still given for rare flowers which almost exceed belief.

This month is the principal time in which birds hatch and rear their young. After they have formed their nests with the most curious art, the female lays her eggs, and then sits upon them with a patience which is at once astonishing and affecting. In almost every species the male bird performs his share of the duty.

The sagacity of bees again claims our attention towards the end of May. The hives now send forth their swarms, to seek new abodes for the exercise of their industry, and the preservation of their stores. These colonies principally consist of young bees, headed by a queen, whom they follow wherever she may lead. These wonderful insects would generally choose some hollow trunk of a tree for their settlement; but man is on the alert to take advantage of their emigration:—he provides them with a dwelling, and their honey is his reward.

It has been a custom in Livonia, from time immemorial, to make cavities in the trees of a forest for the purpose of receiving and rearing swarms of bees. Some of the proprietors have hundreds, and even thousands of bee trees. Those which are chosen for this use, are large oaks, firs, pines, alders, &c. It has been objected to this system, that it destroys the forests and diminishes the quantity of building wood; but M. Buttner observes, that it is not necessary to choose the finest trunks, and that stunted trees are equally serviceable for this use, if they have sufficient size. He states, also, that a bee tree is worth more than if sold for wood; that the old hollow trees, which will serve for an age or two, spread seed around, and cause the production of young suckers, which would be obtained with difficulty, by destroying the old trunks. He adds, that the pure air of the higher regions agrees better with the bees, than the air inclosed in hives which receive the exhalations of the earth, and in which contagious diseases sometimes make great ravages. The proof he offers is, that when garden bees swarm, they are directed,

instinctively, to the woods, whilst the bees of the wood never swarm towards the gardens.

As the traveller passes along the hedge-side he is now often attracted by the light of the glow-worm, shedding a brilliant lustre about the green leaves of her retreat, and by her most singular quality, calling his attention more forcibly to the wonders of nature, than the myriads of wonderful insects that fly around him at every hour. On the evenings of May, when the glow-worm lights her lamp, the nightingale sings, and the cuckoo is heard by night, as well as by day.

June.

To one intimate with the country, and therefore fond of rural enjoyment, June offers two very peculiar sources of pleasure. It is the season of hay-making and of sheep-shearing, both of which operations still retain much of the gaiety of festivals. Shakspeare and Drayton have poetically described the recreations of our ancestors at these rural feasts ; and a writer of more recent date has made "the Fleece" the subject of a beautiful and patriotic poem.

The business of the hay-harvest is so well known, that it is only necessary to observe, that it is one of those occupations in which labour and pleasure seem to unite;—in which toil and cheerfulness almost invariably preserve their proper association.

June is a month of fragrance. The sweet scent of the new-made hay is borne on the evening breeze with a refreshing odour ;—the clover-fields give out the richest perfume from their profuse blossoms ;—and our pastoral poet, Thomson, has said that "Arabia cannot boast a fuller gale of joy" than our bean-fields. Add to this, the dog-rose is scattered about our hedges, with its most delicate tints and no less delicate fragrance ;—and the honeysuckle calls upon the passer-by to appreciate its beauty and its sweetness.

The gardens are now rich with all the luxuriance of summer. The most beautiful of flowers, the rose, is abundant in all its varieties. Add to these we have the pink, the midsummer-daisy, the canterbury-bells, the scarlet lychnis, the sweet-william, the sweet-pea, the larkspur, the candy-tuft, and the nasturtium, At the time of the summer solstice, the poppy begins to exhibit its splendid scarlet in the corn-fields; and the presence of the elder-flower tells the proper time of sheep-shearing.

About the end of June the singing-birds cease their notes. The yellow-hammer and goldfinch may be heard now and then chirping ; but the blackbird and thrush are silent for a while, and even the nightingale foregoes her evening minstrelsy.

July.

The lover of nature has now abundant objects to excite pleasure and gratitude, in his morning or evening walks. The meadows, whose produce has been carried, are now usually crowded with cattle, who range at liberty over their luxuriant pasturage ;—the hop grounds present a scene of beauty and abundance which may almost rival the gay vineyards of the South ;—and the fragrant and beauti-

ful blossoms of the orchards, which we admired a few months ago, have become perfected into clustering fruit, which begins to weigh down the tender branches, and now defies the cutting gales and the devouring blights. In our gardens the wholesome and agreeable fruit of the currant, the gooseberry, the strawberry, and the raspberry, are fully ripe. The various species of lily come into flower; the holyhock, of infinitely varied colours, the convolvulus, the ladies' slipper, the China-aster, the sun-flower, the snap-dragon, the lovelies-bleeding, and numerous other brilliant cultivated plants, succeed the pinks and roses. The bineweed creeps in every hedge; and the woods are coloured with the deep orange berries of the mountain ash.

August.

This is the month of harvest, when the industry of man is crowned with the blessing of heaven; and the sustenance for the future year is laid up in our garners. There can be no sight on earth more delightful than the view of an open corn country, when the waving grain is falling before the hand of the reaper, as he cuts his way through its luxuriant bosom; when the compact sheaves stand ready for their removal to the farmer's stores; when the loaded waggon moves slowly through the stubble to receive the abundance which lies around it; when the busy gleaners follow its scattering course, to collect the little portion which the custom of the primitive ages has bequeathed to their humble wants. This is a season of joy; and he who does not yield to the inspiration around him neither thanks nor praises the "All-giver."

The completion of harvest used universally to be crowned with a rural festival, the harvest-home. Though the practice be not extinct, we fear that the false refinements of modern days have stripped it of that peculiarity which alone gave it a *moral* value—we mean the unrestrained and equal intercourse, for one evening, of the master and his servants. It is not the mere plenteousness of the board to which he is invited that then makes the poor man's heart happy; it is the forgetfulness, for a few hours devoted to a common joy, of the distinctions of rank, that elevates his soul, and makes him exult in the honest pride of mutual gladness, after mutual labour. How heartless is the affected superiority that thinks it does all, when it gives the loaded dish, and the mantling cup, but denies the applauding smile, and the generous sympathy, which are ten times more grateful and refreshing to the humble peasant!

We have still a succession of garden flowers—the amaranths, the African marigolds, the persicories, and the chrysanthemums. Apricots are fully ripe. The clematis (called also the virgin's bower) climbs around the cottage porch, and opens its fragrant and delicate flowers. Of the movements of birds, the most remarkable is the congregation of starlings in large flocks.

September.

In the southern parts of Great Britain the corn harvest is generally completed by the beginning of this month. In Scotland, and in the border-counties, seed is generally sown much later in the spring,

and, consequently, sometimes the grain is not gathered into the barns till the warning snow has apprised the farmer that the season will endure no further delay. The greater part of the harvest in England is generally completed by the beginning of September. On the first of this month partridge-shooting commences. The law which regulates this implies that the grain is removed from the open grounds.

The completion of the harvest offers little repose to the labours of the husbandman. The fields are again to be ploughed, and prepared for the winter corn;—the sowing of which is again commenced. The sagacity of man teaches him to conform to the course of nature, which is ever in a state of perpetual change and activity.

The vintage of England, cider-making, commences in this month. The orchards of the counties of Worcester, Somerset, Devon and Hereford, are now stripped of their juicy stores. The fruit, after being laid aside to mellow, is crushed in a mill; and the juice, after being properly fermented, becomes cider, or apple-wine. Cider, in the neighbourhood of the metropolis, is used only as a luxury; but it forms the common beverage of the inhabitants of those districts where it is principally produced.

In our gardens and orchards, the peach, the nectarine, the pear, and the various species of plum, offer their produce. The gathering of apples for winter use is somewhat later. Apples may be kept till the succeeding season, by placing them in corn, which receives no injury from the contact.

The flowers of the garden are gradually becoming scarcer; but the passion-flowers, the Michaelmas daisy, and the asters, still show us the almost inexhaustible variety and beauty of the Flora.

The trees of the forests as yet do not begin to shed their leaves; but if the season be wet, they become very generally discoloured, and afford to the landscape all the varied and mellow hues of Autumn. The oak now sheds its acorns, and the beech its *mast*.

In this month the annual arrival of the herrings offers a most bountiful supply of food to the inhabitants of the eastern and western coasts of the island. Their arrival is an occasion of rejoicing; and there is an old Scotch air, "Caller Herring," expressive of the joy and gratitude of the natives for this abundance of wholesome food.

The migration of swallows continues during this month, and is almost completed towards its close. The unerring instinct which disposes these birds to congregate, and to remove to warmer latitudes, has been more the subject of admiration and wonder than of accurate and convincing inquiry.

The autumnal equinox—that is, the period when the days and nights are equal all over the earth—happens on the 22d of this month. Heavy storms of wind and rain generally attend both the autumnal and the vernal equinox.

October.

The trees have scarcely in this month begun to shed their leaves;—but their rapidly changing colours indicate that their vegetation has ceased, and that the rains and winds will soon leave the trunks and branches in their wintry bareness. The varied tints of the woods

constitute one of the principal beauties of Autumn;—and if the Spring has joy and hilarity in its freshness, the Autumn has a contemplative and sober delight in its decay. A walk into the country is still pleasing, from the agreeable objects which are yet presented to us. The hedges are no longer bright and blooming—the dog-rose and the honeysuckle no longer bestow their fragrance;—but the blackberries hang in ripening clusters about us, to afford a treat to the schoolboy, and a meal to the linnet—and the hips and haws, while they sparkle on every briar, teach us how kindly provident is the Author of all good, for the preservation of the humblest of his creatures.

Nor are the sounds which were wont to greet us in our walk yet altogether passed away. It is true the autumnal voices of the singing-birds are almost hushed: but then the rooks, by their cries, which are neither unmusical nor unenlivening, call us to look at their singular mode of gathering together of an evening, after their daily excursions. There is an evident purpose in their rapid and sportive flights;—and their cawings, whether they speak the language of congratulation or rejoicing, of command or of obedience, have something social and cheerful in them, and seem to belong to a well-ordered and happy community.

The rough winds, which are so common at this period of the year, manifestly assist in the work which Nature is now performing in various ways—that of scattering the seeds of future vegetation about the earth. An examination of many common plants will at once show how this scattering or dissemination is contrived. Many seeds are furnished with plumes or wings;—and these belong to the plants which are most general—such as dandelion, groundsel, ragwort, thistles, &c. These are borne upon the winds far and wide;—and hence the necessity of cutting those plants which are injurious to agriculture, before this business of dissemination begins. Other plants, such as common burs, contain seeds which are furnished with hooks, and thus laying hold upon passing animals are scattered in distant places. Many seeds are contained in berries, which being eaten by birds, the seeds are discharged uninjured;—and others again are thrown out from their parent plant by strong elastic springs with which their receptacles are provided. The admirable ingenuity, the precision, the regularity, with which all the operations of Nature are conducted, must fill the mind with reverence and admiration of the great Contriver:—His glory and His wisdom are as manifestly displayed in the meanest flower of the field, as in the whole visible universe. The world is a collection of wonders;—and the pettiest production which forms a part of it is a world of wonders within itself.

A singular appearance sometimes presents itself in this month, caused by spiders' webs crossing the paths, extending from shrub to shrub, and floating in the air. This appearance is called *gossamer*, and is caused by an infinite multitude of small spiders, which, when they want to change their place, have a power of shooting forth several long threads, to which they attach themselves, and thus becoming buoyant, are carried gently through the air as long as they

please; after which, by coiling up their threads, they descend very gradually to the ground.

As Nature employs herself in preparing for future production by the dispersion of seeds, so does the farmer this month sow his corn for the coming year. If the weather be too wet, he ploughs up the stubble-fields for winter-fallow. This is the season too for planting fruit and forest trees. There is something at once pleasing to our self-love, useful to our families, and of benefit to our country, in the planting of trees. It is an increase of national wealth of the very best kind. The cottager who puts an apple-tree into his little garden, or an elm or an ash into his hedge, is a patriot in his way,—and has done something to leave the earth better than he found it.

The various class of fungi are most numerous in this month.

November.

There is little variety in the appearances of this month; and the attractions of the open air are generally so few, that even the habitual lovers of nature have little inclination for research and observation. The most remarkable feature of November is the complete and sometimes very sudden fall of the leaves. Of the forest-trees the chestnut, the sycamore, the lime, and the ash, first lose their foliage; the elm retains its verdure a little while longer; the beech and the oak are the last to yield to the driving shower and the rude wind; and when these display their naked branches, the beauty of the woodlands is completely passed, and they remain in their barrenness, till the Spring again calls forth the buds into life.

There are sometimes pleasant days in November;—when the fogs and rains give place to a clear and invigorating sunshine. It is on such days that a country walk has still many and peculiar charms. To tread upon the soft bed of rustling leaves that lie in our pathway;—to view a few solitary leaves still falling from the branches, dancing and eddying round with the gale that blew them off;—to observe the folded sheep who are now principally fed with turnips, and in sharp weather with hay;—to see the greenfinches congregating together;—or to hear the deep harmonious notes of the wood-pigeons, who about this period arrive in our climate, the latest of the winter birds of passage—these are sources of pleasure and instruction which are still supplied to us; and the search after them gives a relief to the mind, and a vigour to the body of the sedentary, while they remind both those whose business and those whose relaxation is in the fields, that the changes of Nature always present some new object of wonder and gratification.

The long evenings now afford every one some portion of time for the improvement of his understanding. The wide diffusion of the blessings of education allows no cottager or mechanic now an excuse for passing the interval between the close of labour and the hour of rest, in apathy and indolence.

December.

Shakspeare calls this month "dark December." The cold mists, the cloudy days, the storms of snow and sleet, and the drizzling

rains, fully justify his epithet. There is nothing remarkable in the natural appearances of this month to call for a particular description;—indeed, the general features of nature in November and in January are so similar, that our observations upon December are almost entirely anticipated.

VII. THE TIDES.

1. *Causes and General Appearances.*

THOSE swellings and subsidings of the waters of the ocean, by which a portion of the shore is alternately flooded and left dry, and to which we give the name of *tides* *, are to the inhabitants of coasts the most interesting, to sea-faring people the most useful, and to the ignorant the most inexplicable, of all the every-day occurrences of nature. The appeal which Canute made to the certain and irresistible flow of the sea, when he meant to rebuke his flattering courtiers, is a proof that, at a very early period of English history, the tides had drawn attention; and as nobody can notice the tides for any length of time without perceiving that, on the same days of the moon's age, they happen, at the same place, at very nearly the same hours of the day, a connexion between them and the moon could not fail to be traced. But as the cause of that connexion does not appear from the connexion itself, the uninformed have regarded it as part of that superstitious influence which the celestial bodies have over the earth and its inhabitants.

Instead, however, of there being any thing mysterious in the matter, it is the most simple that can be; and depends upon that universal law of gravitation, in consequence of which a stone falls to the ground or water runs down a slope.

The general conditions of the law of gravitation are these: Every body, or piece of matter gravitates toward any other piece, directly as the quantity of matter in that piece, and inversely as the square of its distance, the distance being estimated, in the case of spherical bodies, from the centre of the one to that of the other.

Thus, for instance, a weight of 4 pounds at the surface of the earth, which is about 4000 miles distant from the centre, gravitates towards the earth, that is, presses upon that which supports it, counterpoises an equal weight in a balance, or falls if it has no support, with a force of *four* pounds.

* Professor Leslie, in the Notes to his *Treatise on Heat*, gives an ingenious definition of the word "Tide." "From motion seem derived our ideas of time and space, which are often interchangeable terms. The German word *zeit*, denoting *time*, was at first expressive only of *motion*; for in Swedish it has passed into *tid*; the same with the English *tide*. The primitive sense of *tide* may be gathered from its compounds, *noontide*, *betide*, *tidings*, &c."

But if the same weight were raised to a height of 4000 miles, or placed at twice the distance from the centre, its weight would be diminished inversely as the square of the distance, or would be to 4 pounds, as the square of 1 to the square of 2,—that is, it would be *one-fourth* of what it formerly was, or one pound. This decrease would not, however, be pointed out by a common scale-beam, because the weights in both scales would be diminished at the same rate; and thus, if they balance each other at the surface of the earth, they would do the same at any height whatever. It might, however, be measured by the flexure of a spring.

From this diminution, which takes place in the action of gravitation as the distance becomes greater, it is quite evident that, in large masses of matter, such as the earth, the sun, and the moon, the gravitation towards each other will, at the points where they are nearest, be greater than the average, or that at their centres. As for instance, a quantity of water placed on that point of the earth's surface, to which the moon is directly over head, will gravitate more toward the moon than an equal quantity placed 90 degrees from the former, or at a point where the moon is in the horizon. But water is retained upon the surface of the earth by its weight or gravitation toward the mass of the earth, and the perfect freedom with which water moves allows it always to form itself in perfect accordance with the law of gravitation. Now, the gravitation toward the moon, or the sun, acts in the opposite direction to the weight; and, therefore, by whatever portion that gravitation is increased above the average, the weight must be diminished, and the water must *rise up* there till the excess of height balance the loss of weight, and an equilibrium be everywhere established, in those parts that are covered with water, and have a free communication with each other.

Toward every celestial body the variation must be the same in kind; but the sun, in consequence of its great mass of matter, and the moon, in consequence of its nearness to the earth, are the only ones of which the effects are perceptible.

The whole gravitation toward the sun is much greater than that toward the moon; but the mean distance of the sun is about 24,000 times the half diameter of the earth, while that of the moon is only 60 times; and as the disturbing forces are to the whole gravitations inversely as the cubes of those numbers, (they entering the proportion *three* times as factors,) the disturbing force of the moon, that is, the force by which the water becomes lighter when the moon is over head, is about $2\frac{1}{2}$ times that of the sun.

It would be out of place here to insert the calculations, which are long though simple. But the result, stated in round numbers, is, that if the earth were all covered by the same depth of water, a tide of *two feet* would be raised at the point where the sun is directly over head, and a tide of *five feet* where the moon is so,—that is, the water at each of those points would be higher by two feet in the case of the sun, and five feet in the case of the moon, than at the circumference of the hemispheres, of which those points were respectively the centres.

The tide that happens at the point nearest to any of the luminaries, or where that luminary is above the horizon, is called the *upper tide*, and the opposite one is called the *under tide*. The under-tide is produced in the same manner as the upper, except that it is the diminution, and not the increase, of the moon's action which causes it.

If the earth were wholly covered with water, if the sun and moon were always at the same distances from it, and if the three bodies remained in the same places without motion, the two high waters of each luminary would remain at the same points, and the low water of each would be the circumference dividing the two hemispheres, of which the point nearest the luminary and the point most remote from it were the centres; and as the gravitation toward the earth would be the same at every point, there would be no means of discovering the difference of elevation. Not one of these circumstances holds, however; and therefore the want of each of them gives a different modification to the tides.

1. The real motion of the earth from west to east every 24 hours causes the high and low water of the solar tide to perform a complete revolution from east to west in twenty-four hours also.

2. The same motion of the earth, with the moon's motion round the earth, from west to east also, in about 29½ days, causes a complete revolution of the lunar tides from east to west in one solar day and two fifty-ninths, or in about 24 hours 48½ minutes.

As the action of the luminary takes some time to produce its effect, the high water at any point does not take place till an hour or two after the luminary has been vertical.

3. When the sun and moon are on the same points of the compass or on opposite points, then if they be so situated with regard to north and south, as that a straight line passing through both their centres would pass through the centre of the earth, the high waters will fall on the same points, and the low waters on the same circumference, midway between those points.

In these cases, the high water will be the sum of the elevations, and the low water the sum of the depressions. These are called *spring* tides. It is evident that they must happen at every *new* moon, by the coincidence of both upper and under tides; at every *full* moon, by the coincidence of the upper tide of each luminary with the under tide of the other; and that they can happen at no other times.

The same cause which makes the high water of each luminary take place later than the time that that luminary is vertical, makes the highest spring tide to happen a little after the new or full moon.

4. As time is reckoned by the apparent motion of the sun, the solar high water always happens at the same hour at the same place, but as the lunar high water, which is the greater, and gives a character to the whole, happens about 48½ minutes later every day, it must separate eastward from the solar high water at that rate, and gradually become lower and lower, till, at the end of the first and third quarters of the moon, it fall on the same place with the low

water of the solar tide. Then the elevation of the high water, and the depression of the low, will be both only the difference of the solar and lunar tides, and the tides will be *neap*.

During the first and third quarters of the moon, the tides will *fall off* from the spring to the neap, and during the second and fourth quarters they will *grow* from the neap to the spring.

5. The obliquity of the earth's annual path round the sun causes the sun, in summer, to appear, over our latitudes, nearly 47 degrees farther north than in winter; and the obliquity of the moon's monthly path may make the new moon about 5 degrees more either north or south of the sun; and also vary the full moon to the same number of degrees from the point opposite to the sun. Those changes produce what may be called the *seasonal* variations of the tides. They take place thus:—

a. About the *equinoxes*, in March and September, the sun is near near the equator, and the moon, at the time of the spring-tides, cannot be many degrees from it: therefore, the tides are then highest and most uniform in both hemispheres; highest of course at the equator where the points of high water of both luminaries are, and gradually diminishing toward the poles, where, if the earth were uniformly covered with water, there would be continual low water at those seasons.

b. About midsummer, in the northern hemisphere, the sun is vertical about 22 degrees north of the equator; and the new moon is, on the average, the same; but the full moon is, on the average, as far on the south side of the equator. Therefore, about midsummer, the spring tides at new moon will be highest in the northern hemisphere; and those at full moon in the southern.

c. About mid-winter, the circumstances mentioned in the last article will be reversed.

6. The paths, or orbits of the earth and moon, are not circles, but ellipses or ovals; and therefore the sun and moon must be both nearer to the earth at some times than at others. The point where the earth is nearest to the sun is called its *perihelion*, and the point where the moon is nearest to the earth is called its *perigee*. The earth being in its perihelion causes an increase of the solar tide, and the moon being in its perigee causes an increase of the lunar; because the disturbing force increases inversely as the cube of the distance.

The perihelion takes place in a revolution of 365¼ days, and the perigee in one of 29½ days; therefore they sometimes coincide, and sometimes not, and when they do coincide it may be at any time of the moon's age. The calculation, from the *inequalities* of motion and distance, especially of the moon, is intricate; but the result is, that when they coincide at a spring tide, they may augment it about one seventh; while, when the luminaries are at their greatest distance at a spring tide, it may be diminished about one seventh.

7. It is only on wide oceans that the regular motion of the tides from east to west can take place; for the shores of the land throw them into so many irregularities, that at some places there

are no tides, at others they rise to a great height: sometimes there are double tides; and sometimes only one in twenty-four hours. So that the time of high-water spring-tides at any place must be found by observation; and in rivers and narrow seas, floods and storms may very much alter both the time and height of the tide. The average from high water to high water, or low water to low water, is about twelve hours, twenty-four minutes; and that from high to low, or low to high, six hours, twelve minutes; but when a current, either of the sea or a river, *sets* one way with the tide, the way that it sets is always of the longest duration.

It must be borne in mind that, leaving the obstructions of the land out of the account, the high waters, both of the sun and the moon, are points, and that the low water of each is a circumference of the earth. From this it is evident that, if both luminaries are over the equator, the high waters of both will be on the equator, whatever may be their distance eastward or westward (as arising from the moon's age, or distance from the sun), and that the low waters of both will pass through the poles, at which there will, of course, be no tides. At those times there will be an extreme, or top of high water only at the equator; and thus the two luminaries, acting directly together at spring tides, and directly opposite at neap tides, will cause the former to be higher and the latter lower than at times when one or both of the luminaries have declination from the equator. When either of the luminaries has declination either north or south of the equator, the upper high water of that luminary must decline as many degrees to the same side of the equator, and the under high water the same number of degrees to the other side. In these cases there will be two latitudes on opposite sides of the equator, each distant from that by the declination, and distant from each other by twice the declination, round which the top of high water will revolve. At those times, too, the low water of each luminary will fall as many degrees as the declination *beyond* the pole toward which the luminary declines, and fall the same number of degrees short of the other pole. By these means the whole tide will be lower when the luminaries have different declinations, because each will diminishthe high water of the other in the direction of north and south, and the *upper* tides will be highest at new moon, and the under tides at full. These differences will increase, both with the declination and the latitude. At midsummer and midwinter they will have arrived at their maximum, and at a distance from the poles equal to the mean declination of the sun and moon, there will be only one high water in a lunar day, that is, the high waters will be about 24 hours 49½ minutes asunder.

The motion of the tide is not accompanied by an actual transfer of the whole water; for that would produce, at the equator, a current of about one thousand miles an hour. The wave of tide is sometimes moved in one direction, while the great mass of the water is moved in the other by an under current; just as one may often see the ripple which the wind causes, blown against the current of a river.

2. *Common Rules for finding the Time of High-Water.*

To determine this time, these elements are necessary,—

1. The time of high-water at full, or change, is found by observation; and to be accurate, it must be the mean of many observations made at different times of the year, and in different states of the weather.

2. The moon's age on the proposed day.

3. The time after noon when the moon shall arrive at the south.

The MOON'S AGE is found, by adding the *epact* for the year (the moon's age on the 1st of January) to the *epact* for the month, (the age of the moon on the first of the month if it had been new moon on the 1st of January,) and the day of the month. If the sum be less than a lunar month, it is the moon's age; but if greater, take a lunar month from it, and the remainder is the moon's age.

The epacts for the months are these: January 0, Feb. 2, March 1, April 2, May 3, June 4, July 5, Aug. 6, Sept. 7, Oct. 8, Nov. 9, Dec. 10.

Thus to find the moon's age for June 10, 1828.

Epact of the year . .	14
Epact of the month .	4
Day of the month .	10
	28 days.

The moon, when new, is south at the same time with the sun, and eight-tenths of an hour nearly later for every day of her age. Therefore, multiply the moon's age by 8, take away the units figure, and multiply it by 6, for minutes; the other figures are hours after noon. If they exceed twelve, the excess is the hour of southing on the following morning.

As, if the moon's age were 28 days, $28 \times 8 = 22.4$, or 22 hours, 24 minutes; that is, 24 minutes after ten the following morning.

The high water is found, by adding the time of the moon's southing to the time of spring-tide in the table. As, to find the high water at Bristol for 10th June, 1828.

Supposing the tabular number for

Bristol to be	6 h. 36m.
Add moon's southing . .	10 24m.
	17 hours
Subtract	12
Remains	5 o'clock.

From the variations already mentioned, as well as from local causes, these rules are not perfectly accurate; but they may serve to explain and exemplify the principles.

PART II.

GENERAL INFORMATION ON SUBJECTS OF CHRONOLOGY, GEOGRAPHY, STATISTICS, &c.

VIII. NATURE AND USE OF CHRONOLOGY.

THE term CHRONOLOGY is made up of two Greek words, *Chronos* "time," and *Logos*, literally "word," or "description;" so that the simplest definition of its meaning is, THE STORY OF TIME,—or the narrative of the succession of recorded events, in their proper order, noticing the portions of time that elapse between them.

As the past is our only safe guide for the present, and our only useful key to the future, the story of time, or the consideration of events in the order in which they happen, becomes a matter of the utmost importance. Even to our merely historical knowledge, that is, our knowledge of the events themselves, and without any reference to the comparison of them together, chronology is important; because, without that, our knowledge is not correct. But when we wish to turn our historical knowledge to a practical use, by reflecting upon the causes and results of human actions, chronology becomes indispensible. The great practical use of past events is the effect that the *antecedent* event has upon the *consequent;* and if we mistake the order of succession, (and where we have no information, we are more likely to be wrong than right,) we are in a worse condition than if we had no information whatever,—we are in a similar condition to a man travelling along the road from London to Dover in order to arrive at Liverpool,—farther from the object we wish to arrive at, than if we had not moved at all.

Now, men seldom take the first step in any art or science, until they are goaded on by necessity; and as the use of chronology is philosophical, and thus does not appear till men begin to compare the former events with the latter, and draw conclusions, it cannot be known among very illiterate nations, and could not be known in the early ages of the world. The memories of the inhabitants of the South Sea Islands do not extend backwards above an age or two; and even then they are vague, not agreed about the events themselves, or informed as to the intervals between them. Of the recorded events of the early ages of the world, the information is so very uncertain that the most acute and laborious inquirers into the subject are at variance.

Before the story of time can be known, we must know something of time itself; we must know how to compare two portions or periods of it, so as to be able to say either that they are of equal length, or that the one is longer than the other, and how much longer it is. In order to do this, we must fix upon some standard of which the length is known; and as we cannot keep a portion of time by us to apply to other portions, as we do a standard pound for weight, or a standard bushel for dry measure, we must have recourse to some event which we have reason for believing

does not take up a longer period at one time than at another,—such as the rotation of the earth upon its axis, the revolution of the moon round the earth, or that of the earth round the sun. Of the absolute equality of any two portions of time, whatever may be the event by which they are measured, we never can be certain; because we cannot be in possession of two of them at once so as to compare together. If we can find no other difference between the events, we have no *reason* to believe that the times in which they happen are of different lengths; and this negative proof is all that we can get. In using the measure of time, we observe the same method as with other measures. If the period be less than a day, we mention the number of hours or parts of an hour that are in it; if it be of moderate length, such as the life of a man, we count it in years; and if it be long, we count it in centuries, or hundreds of years.

Though to all nations, the various lengths, of the day as arising from the rotation of the earth, of the month as arising from the revolution of the moon, and of the year as arising from the revolution of the earth, be each dependent upon the same cause; and though, as the other circumstances of those causes—the spaces over which those bodies pass—do not vary much, the same day, or month, or year, must be of the same length to the people of all nations, and there cannot be much difference between one and another; yet different nations have had different modes of reckoning them. Some of these differences are pointed out in Art. I. "On the Calendar."

When a nation came to such a degree of information and importance, as that it felt a desire to record the events of its own history, it generally began with some great event, as a fixed point or EPOCH, from which it counted the ERA or succession of portions of time, all presumed to be equal, and each equal to that which the nation happened to take for a standard. The day being the portion with which people are most familiar, and also the one of which the appearance is the most striking—light and darkness being the greatest of all contrasts—most nations made the day the absolute measure; but as the day is rather short for measuring long intervals, they generally had periods of so many days, and of so many times these again, corresponding with, or rather having some resemblance to, our weeks, months, and years.

As an exact number of times of the rotation of the earth is not contained in the revolution of the moon, and as an exact number of times of either this rotation or this revolution is not contained in the revolution of the earth, *eras* which are reckoned in terms of either of these fixed periods, do not agree with each other. In other words, as days, lunar months, and years, are not even parts or multiples of each other, two eras which are counted, one in so many times one of these, and the other in so many times of another, cannot be made to agree, so as to point out the time at which any event happens, without making corrections for the fractional differences. The period of time in which those fractional differences amount to an unit of the shorter measure, is called a cycle.—See Art. II.

Those nations among whom the Christian religion has been disseminated, have, ever since its introduction, abandoned all *eras* save that which began at the birth of Our Saviour. This is called the CHRISTIAN ERA; and when the *date* or *number* of the year is spoken of in a solemn or formal manner, the words *Anno Domini*, or the contraction A. D., meaning "the year of the Lord," are prefixed to the number, to distinguish it from other eras. When we count from the birth of our Saviour backward, we either put B. C., "before Christ," or *Anno ante Christum*, A. A. C., which is the same. Events are sometimes dated from the creation of the world; and the term *Anno Mundi*, A. M., that is, "year of the world," prefixed to the date; but as opinion is divided as to the precise date of the creation, in terms of the Christian era, the commencement of that era is considered as the preferable epoch.

To find the distance of any event—if it be before the birth of our Saviour, add the date of it to the date of the year; if after, subtract; the sum in the first case, as the difference in the second, is the time from the present date, or the distance of the event.

As the eras of the nations of antiquity have become obsolete, and as the principal events in their histories have been reduced to the respective years of the Christian era, either before or after the birth of our Saviour, those eras are needed only by those who read the writings of antiquity; and, therefore, it is not necessary in the present case to detail them. There is, however, one era which is used by a very large portion of the moderns, the *Hejira*, or era that commences at the epoch of the flight of Mahomet from the city of Mecca to that of Medina, which took place in the 622d year of the Christian era. The Mahometan year is regulated by this event.

CHRONOLOGICAL TABLES.

PRINCIPAL ERAS.

Creation of the World.—There have been as many as one hundred and forty opinions on the distance of time between this event and the birth of our Saviour*. Some make it as small as 3616 years, and some as great as 6484. The chronology which is usually given with the authorized version of the Bible places the event in the 4004th year before the commencement of the common era.

The Olympiads.—The first year of the first Olympiad begins in the summer of the 776th year before the common era; the first year of the second Olympiad, in the summer of the 772d year, and so on.

The Foundation of Rome.—The 753d year before the commencement of the common era, according to the calculation usually adopted.

The Birth of Christ.—This is probably to be dated in the 4th year before the commencement of the common era.

The Hejira.—Commencing on the 16th of July, in the 622d year after the common era.

BEFORE THE COMMENCEMENT OF THE COMMON ERA OF THE INCARNATION.

2349 Commencement of deluge, which lasts about a year.
1921 Call of Abraham. A monarchy in Egypt at the time.

* Fabric. Bibl. Ant. cap. 7. Koch. Tab. Rev. Introd. xix.

1491 The Israelites leave Egypt under Moses.
1451 The Israelites enter Canaan.
1255 Josephus's date of the foundation of Tyre; i. e., 240 years before the building of the Temple.
1080 [1657]* Cecrops from Egypt founds Athens.
Argos, Sicyon, Eleusis, founded about the same time.
Deucalion flourishes, [1580].
1069 Saul, first king of Israel. Sparta built by Eurotas, and Lacedæmon.
1048 Tyre built, according to Newton. Reign of David.
1045 [1594] Cadmus, from Phœnicia, founds Thebes in Bœotia; he is said to have introduced letters into Greece.
Dardanus, a founder of Troy, [1425].
1028 Œnotrus leads a colony of Greeks to Italy.
1015 Minos reigns in Crete. Temple built by Solomon.
1007 Amphictyonic Council.
1002 Sesostris, an Egyptian conqueror.
993 [1362] Pelops comes to Greece from Asia.
987 Oracles in Greece.
983 Sisyphus reigns at Corinth; said to have founded it.
979 Kingdoms of Judah and Israel separated.
968 Theseus civilizes Attica.
964 [1586] Danaus comes to Greece from Egypt.
943 Greek colony to Italy under Evander.
937 [1360] Argonautic Expedition. Jason, Hercules.
928 [1317] War of Seven Chiefs against Thebes.
918 [1307] Thebes taken by the Descendants of the Seven Chiefs.
904 [1270] Troy destroyed by the Greeks.
Homer, perhaps two or three generations later. Hesiod later still.
883 Carthage founded by Dido from Phœnicia.
825 [1190] The Heraclidæ conquer the Peloponnesus. Æolic migration to Asia.
794 [1130] Ionic migration to Asia, after the death of Codrus, last king of Athens.
790 Pul founds the Assyrian empire.
776 Era of Olympiads begins.
753 Rome founded, according to the usual date.
747 First kingdom of Babylon, and kingdom of Nineveh, or Assyria, arising from Pul's kingdom.
Era of Nabonassar begins.
721 Captivity of the Ten Tribes of Israel.
719 [757] Syracuse founded by a Corinthian Colony.
711 Independence of the Medes, who revolt from the Assyrians of Nineveh.
708 [845] Lycurgus's legislation at Lacedæmon.
681 First kingdom of Babylon put an end to by the Assyrians of Nineveh.
655 Psammeticus king of all Egypt.
652 [743] First war between Messenia and Lacedæmon.
635 Scythians get possession of Upper Asia, and Cimmerians of Lydia.
627 Newton's date of foundation of Rome.
625 Second Babylonian, or Chaldæan kingdom begins, by Nabopolassar's revolt from the Assyrians of Nineveh.
609 Assyrian empire of Nineveh destroyed by the Babylonians and Medes.
607 Scythians driven from Upper Asia. Cimmerians driven from Lydia about the same time.
596 Perdiccas founds the monarchy of Macedonia.

* From hence, down to the date 596 inclusively, the dates are taken from Sir Isaac Newton. In some instances, there are added in brackets the dates of the same events as they appear in the tables subjoined by the Abbé Barthelemy to the Travels of Anacharsis, for the purpose of showing the diversity of opinions which have prevailed on the subject of early chronology.

590 The Greeks, under Bellovesus, cross the Alps into Italy.
594 Legislation of Solon. Draco, perhaps twenty-five years earlier.
588 Destruction of the kingdom of Judah by the Babylonians.
560 Pisistratus, tyrant of Athens. Thales flourished.
559 Anacreon flourished.
556 Simonides born.
553 Stesichorus died.
548 Anaximander. Anaximenes.
546 Kingdom of Lydia destroyed by Cyrus, king of Persia. The kingdom of Media probably destroyed by him shortly before.
544 Pherecydes flourished.
539 Pythagoras flourished.
538 Kingdom of Babylon destroyed by Cyrus. Jews return to Jerusalem shortly after.
535 Thespis flourished.
525 Cambyses, king of Persia, conquers Egypt. Æschylus born.
519 Cratinus born. Hecatæus flourished.
518 Pindar born.
510 Pisistratidæ driven from Athens.
509 Monarchy abolished at Rome. Consuls and Quæstors instituted there.
508 Expedition of Darius Hystaspes, king of Persia, into Scythia. Thrace and Macedonia tributary to him.
503 Parmenides flourishes. Heraclitus flourishes.
500 Anaxagoras born.
499 Sardis burnt by the Ionians and Athenians.
496 Hellanicus born.
495 Sophocles born.
493 Tribunes and Ædiles instituted at Rome.
490 Battle of Marathon.
485 Gelon, tyrant of Syracuse. Epicharmus flourished.
484 Herodotus born.
480 Battles of Thermopylæ, Artemisium, Salamis, and Himera. Euripides
479 Battles of Platæa and Mycale. [born.
477 Athenian ascendancy commences.
471 Thucydides born.
468 Mycenæ destroyed. Socrates born.
466 Battles of the Eurymedon.
464 Zeno of Elea flourished.
458 Lysias born.
Gorgias flourished.
451 Decemvirs at Rome. Laws of the Twelve Tables.
457 Battle of Tanagra.
447 Battle of Coronea.
444 Empedocles flourished. Xenophon born. First Military Tribunes
443 Censors instituted at Rome. [at Rome.
436 Isocrates born.
431 Peloponnesian War begins. Hippocrates flourished.
429 Plato born. Eupolis flourished.
427 Aristophanes flourished.
413 Athenians defeated in Sicily. Birth of Diogenes the Cynic.
406 Dionysius, tyrant of Syracuse.
404 Athens taken. Thirty tyrants there. Commencement of Lacedæmonian ascendancy.
Government of thirty tyrants destroyed.
401 Retreat of the Ten Thousand Greeks. Ctesias flourished.
397 Peace of Dercyllidas.
390 Rome burnt by the Galli Senones under Brennus.
389 Birth of Æschines.
387 Peace of Antalcidas.
384 Birth of Aristotle.
382 Birth of Demosthenes. The Cadmea, the citadel of Thebes, seized by the Lacedæmonians.

379 The Lacedæmonians expelled from Thebes.
376 Battle of Naxos. Lacedæmonian ascendancy ends.
373 Theophrastus born. [in Greece.
371 Battle of Leuctra. Epaminondas and Pelopidas. Theban superiority
365 Antisthenes flourished. Prætors instituted at Rome.
364 Isæus flourished.
362 Battle of Mantinea. Theban superiority ends.
359 Philip, son of Amyntas, becomes king of Macedonia.
357 Greek Social war. Phocian Sacred war.
356 Birth of Alexander the Great. Temple of Diana at Ephesus burnt.
Dionysius expelled from Syracuse by Dion. Theopompus flourished.
347 Speusippus flourishes. Olynthus taken by Philip.
343 Dionysius expelled from Syracuse by Timoleon.
342 Birth of Menander.
341 Birth of Epicurus.
338 Amphissian Sacred war. Battle of Chæronea. Macedonian ascen-
336 Philip assassinated. [dancy.
335 Thebes destroyed by Alexander the Great.
334 Alexander invades the Persian empire; wins the battle of the
333 Alexander wins the battle of Issus. [Granicus.
332 Alexander conquers Syria and Egypt.
331 Alexander wins the battle of Guagamela, or Arbela, followed by the conquest of the Persian empire.
330 Darius assassinated by Bessus. Philemon flourishes.
327 Alexander's campaign in India.
326 Voyage of Nearchus.
325 Demetrius Phalereus flourishes.
323 Death of Alexander. His empire is divided.
322 A Macedonian garrison placed at Athens, by Antipater, and the de-
317 Death of Phocion. [mocracy superseded.
316 Alexis flourishes.
315 Restoration of Thebes.
312 Seleucus takes possession of Babylonia. Era of the Seleucidæ begins.
307 Restoration of the Athenian democracy.
301 Antigonus defeated and slain at the battle of Ipsus.
The Empire of Alexander finally divided: Ptolemy takes Egypt, Libya, and Palestine; Cassander takes Macedonia; Lysimachus takes Thrace and Bithynia; Seleucus takes Syria, with most of Upper Asia.
280 Rise of the Achæan league. Chrysippus born.
278 The Gauls, who had invaded Greece, are driven out and pass into Asia. Zeno of Cittium flourished. Strato, Epicurus, Arcesilaus,
276 Antigonus Gonatus, king of Macedonia. [flourished.
275 Pyrrhus defeated in Italy by Curius Dentatus.
265 First Punic war.
260 Duillius gains a naval victory over the Carthaginians.
250 Regulus put to death.
241 First Punic war ends.
240 Agis, king of Sparta, put to death.
236 Panætius died.
233 Livius Andronicus and Nævius flourished.
223 Antiochus the Great (III.) becomes king of Syria. Quintus Fabius Pictor flourished.
222 Battle of Sellasia. Sparta taken by Antigonus.
219 Illyria subdued by the Romans.
218 Second Punic war. Hannibal passes the Alps. [Romans.
Battles of the Ticinus and the Trebia, won by Hannibal over the
217 Hannibal defeats the Romans at the lake Thrasymene.
216 Hannibal defeats the Romans at Cannæ.
215 Alliance between Hannibal and Philip, king of Macedonia.
212 Syracuse taken by Marcellus. Archimedes killed.

207 Asdrubal defeated and slain at the Metaurus.
206 Polybius born.
204 Peace between Philip and the Romans. Plautus flourishes.
202 Hannibal defeated by Scipio, at Zama.
201 Second Punic war ends. Ennius flourishes. First Macedonian war.
197 Battle of Cynoscephale. First Macedonian war ends.
192 War of Romans with Antiochus, king of Syria. Pacuvius flourishes.
189 Antiochus is defeated at Magnesia, and makes peace.
183 Philopœmen put to death. [flourish.
172 Second Macedonian war begins. Cæcilius, Afranius, and Terence
168 Perseus defeated at Pydna. Second Macedonian war ends. Macedonia becomes a Roman province.
166 Judas Maccabeus delivers the Jews from the Syrians.
155 Carneades and Diogenes, Athenian ambassadors at Rome. Attius
149 Third Punic war begins. [flourishes.
148 M. Porcius Cato died.
146 Carthage destroyed. Corinth destroyed. Greece becomes a Roman
140 Death of Viriatus in Spain. [province.
135 Servile war in Spain.
133 Murder of Tiberius Gracchus. Destruction of Numantia.
132 Servile war in Sicily ended.
121 Caius Gracchus killed. Lucilius flourishes.
117 Gallia Narbonensis becomes a Roman province.
111 War against Jugurtha begins.
106 End of war against Jugurtha.
102 Marius defeats the Ambrones and Teutones.
101 Marius destroys a horde of Cimbrians. Julius Cæsar born.
93 Livy born.
91 Italian (Marsic, or Social) war.
88 Mithridatic war. Marian Civil war.
87 Marius seizes Rome.
86 Death of Marius. Sallust born.
84 Peace with Mithridates.
82 Sylla seizes Rome, and is made perpetual Dictator. War renewed against Mithridates.
81 Peace with Mithridates.
80 War with Sertorius.
79 Sylla gives up the Dictatorship.
74 War renewed against Mithridates.
73 War against Spartacus. Sertorius assassinated.
71 War against Spartacus concluded. Recovery of Spain completed.
67 Pompey conquers the pirates. Lucretius flourishes.
63 Death of Mithridates. Conspiracy of Catiline. Palestine conquered.
60 First triumvirate, consisting of M. Crassus, Cn. Pompeius, and Julius
58 Cæsar's wars in Gaul begin. Catullus flourished. [Cæsar.
55 Crassus goes to Syria. Cæsar's expedition to Britain.
53 Crassus slain by the Parthians.
52 Clodius murdered.
50 Subjugation of Gaul, by Cæsar, completed.
49 War between Cæsar and Pompey begins. Cæsar enters Rome; conquers Afranius and Petreius, in Spain; created Dictator.
48 Battle of Pharsalia. Murder of Pompey.
47 Cæsar's war in Egypt. He conquers Pharnaces.
46 Cæsar conquers Pompey's party in Africa.
45 Cæsar conquers Pompey's sons in Spain; battle of Munda. Cæsar declared Father of the Country, Perpetual Dictator, and Emperor.
44 Cæsar assassinated. Diodorus Siculus flourished.
43 Battle of Mutina. Second Triumvirate, consisting of C. Octavius (afterwards the Emperor Augustus), M. Antonius, M. Lepidus.

42 Battles of Philippi. Deaths of Brutus and Cassius.
40 Herod made king of the Jews.
36 Sextus Pompeius conquered in Sicily.
32 War between Octavius and Antony.
31 Battle of Actium.
30 Deaths of Antony and Cleopatra.
27 Augustus declared Emperor. Virgil, Horace, Ovid, Gallus, Pollio, Varius, Tibullus, Propertius, Phædrus, flourished.
25 Cornelius Nepos died.
12 Pannonians subdued. Victories of Drusus in Gaul.
8 Seneca born.
4 Birth of our Saviour; sometimes placed four years later. Dionysius of Halicarnassus flourished.

COMMENCEMENT OF THE COMMON ERA OF THE INCARNATION, IN THE 4004-5TH YEAR FROM THE CREATION OF MAN.

After Christ.

16 Augustus dies. Tiberius. Mathematicians expelled from Rome.
17 Arminius defeats Marabodus.
19 Germanicus poisoned. Celsus. Pomponius Mela.
21 Arminius is killed.
33 Crucifixion of our Saviour.
35 St. Paul converted.
37 Caligula. 41, Claudius.
40 The followers of our Saviour called Christians.
44 Conquests of Plautius in England.
50 London founded by the Romans.
54 Nero. Perseus (*b.* 34, *d.* 62). Lucan (*b.* 38, *d.* 65). Seneca (*d.* 65). Petronius Arb. (*d.* 67). Dioscorides. Flav. Josephus (*b.* 37, *d.* 93).
60 Christianity introduced into Britain.
64 Rome set on fire, burned six days. First persecution of the Christians.
70 Destruction of Jerusalem. Pliny (*b.* 23, *d.* 79).
78 Agricola completes the conquest of Britain.
79 Titus. Pompeii and Herculaneum destroyed by an eruption of Vesuvius. Valerius Flaccus. Silius Ital. (*d.* about 100). Quin-
81 Domitian. [tilian (*b.* 42).
84 Agricola defeats the Caledonians (Scotch).
90 Juvenal. Epictetus.
94 Second persecution of the Christians under Domitian.
96 Nerva. Tacitus. Pliny the younger.
98 Trajan. 106, Dacia subdued. Suetonius. Florus. Plutarch (*b.* 50). Third persecution under Trajan.
117 Adrian. The Euphrates the frontier of the Roman empire in Asia.
118 The city of Jerusalem again destroyed. Dispersion of the Jews.
138 Antoninus Pius. Claudian. Ptolemy. Arrian.
161 Marcus Aurelius and L. Verus. Galen. Appian. Symmachus. Aul. Gellius. Apuleius.
163 Fourth persecution under M. A. Antoninus.
166 to 178, war by the Romans with the people between the Alps and the Danube.
180 Commodus. The Goths seize upon the eastern part of Dacia.
192 The Saracens known by a victory which they gained over the Romans, in the deserts of Arabia.
193 Pertinax. Didius Julianus. Pescennius Niger. Septimus Severus.
202 Emilius. Papinian (slain 212). Ulpian (slain 228). Tertullian (*d.* 220). Philostratus.
203 Fifth persecution under Severus.
209 The wall of Severus built in Britain.

211 Caracalla and Geta.
213 First mention of the Germans, a people united on the upper Rhine.
217 Macrinus. 218 Heliogobalus.
222 Alexander Severus. Origen (*b.* 185, *d.* 254). Dion Cassius. Ammonius Saccas, author of the new philosophy of Plato. Herodian. Sext. J. Africanus.
226 Artaxerxes, king of the new empire of Persia. War against Rome.
236 Sixth persecution under Maximinian.
250 First mention of the Franks, a people united on the lower Rhine.
Seventh persecution under Decius. [Laertius.
251 Irruption of the Goths into Thessaly. Plotinus (*d.* 270). Diogenes
252 Eighth persecution under Gallus.
258 Ninth persecution under Valerian.
260 Sapo, king of the Persians, takes king Valerian prisoner. The Germans advance to Ravenna. The Vandals. Longinus.
263 Irruption of the Franks into Gaul.
264 Odonathes reduces the Persians, and repels the Goths.
267 Dioclesian conquers the Saracens.
273 Aurelian conquers Palmira. Zenobia.
274 Silk first brought from India.
275 The Goths seize upon Dacia (the Visigoths, and the Ostrogoths).
277 Probus drives the Germans from Gaul, and defeats the Franks.
284 Dioclesian
298 Constantine Chlorus defeats the Germans near Langres.
303 Tenth persecution under Dioclesian.
306 Constantine the Great embraces Christianity. 311 Lactantius.
313 The Franks are conquered; and 321 the Sarmatians.
Eleventh persecution ends by an edict of Constantine.
323 The Western provinces are joined to the Eastern.
325 A Council held at Nice.
330 Constantinople, capital of the empire.
350 The Franks in Gaul.
353 Constantius. 354-430 Augustin.
358 Julian reduces the Salique Franks, and
360 forces the Germans to conclude a peace.
361 Julian the Apostate killed 363, in a war against the Persians. Diophantus, mathematician.
368 Theodosius again subdues Britain. Valentinian I. War with the
369 Valens compels the Visigoths to make peace. [Germans.
373 The Bible translated into the Gothic language.
374 The Visigoths pass the Wolga.
376 The Ostrogoths are conquered.
395 Division of the Roman empire. Honorius in the West, Arcadius in the East. Stilico.
400 Bells invented.
401 Alaric, king of the Visigoths, devastates Italy.
407 The Germans penetrate into Helvetia.
409 The Vandals, and others, subdue Spain.
410 Alaric's third expedition. Capture of Rome.
412 Astolphus, king of the Visigoths, defeats Jovinus in Gaul. Honorius yields up Britain.
428 Nestorius, bishop of Constantinople.
429 The Vandals, commanded by their king, Genseric, pass into Africa.
433 to 452 Attila.
451 Attila conquered by Ætius at Chalons sur Marne. Theodoric I.
452 Attila in Upper Italy. Foundation of Venice.
457 Hengist the Saxon founded the kingdom of Kent.
468 The Romans expelled from Spain by Eric, king of the Visigoths.
476 The Western Roman Empire overturned.
477 Empire of the Visigoths in Gaul.
490 Ælla founds the kingdom of Sussex.

493 Theodoric the Great king of the Ostrogoths, conquers Italy.
Silkworms introduced into Europe.
508 Clovis subdues the kingdom of the Visigoths in Gaul, and estab-
lishes that of the Franks, the country being afterwards called
511 Division of the kingdom of the Franks. [France.
527 Justinian (*d.* 565); 530 Pandects established.
553 Overthrow of the empire of the Ostrogoths in Italy.
558 Clotaire.
568 The kingdom of Lombardy founded.
569 Mahomet preaches Islamism. [Spain.
585 Leovigild, the Visigoth, overthrows the empire of the Suevi in
597 Augustine, the monk, settles in England.
622 The Hejira. Abubekir revises the Koran.
637 Jerusalem taken by the Saracens.
638 The Saracens make themselves masters of Syria, and 651 of Persia.
660 Organs used in churches.
663 Glass brought into England.
685 The Britons driven into Wales and Cornwall by the Saxons.
698 The Saracens masters of Carthage. Anafestus, the first Doge of
Venice.
711 The Arabs, with Tarik at their head, make a descent on Spain,
which they finally conquer under Muza 714. 718 Pelayo.
752 Pepin, king of France.
755 Pope's temporal dominion began.
774 The kingdom of Lombardy under the dominion of the Franks.
785 Saxony, a province of France.
786 Haroun al Raschid.
787 The Danes make a descent upon England.
800 Charlemagne crowned emperor of the Romans. Leo III. Founda-
tion of Scholastic philosophy. Progress of the Arabs in the
sciences. (Mahomet Ben Omar *d.* 822). Clocks introduced into
803 The Saxons submit to Charlemagne. [Europe from the East.
806 The Sorbes and Vandals become tributary to him.
814 Charlemagne dies at Aix-la-Chapelle.
827 Egbert the Great, king of England.
853 Pope Nicholas refuses to confirm the election of Phocius, at Con-
stantinople, which causes the schism of the Greek church.
855 Foundation of the kingdom of Navarre under D. Garcias.
877 Charles the Bald introduces the hereditary feudal system into France.
880 Schism of the Greeks, who separate from the Roman church.
881 Alphonso III. penetrates as far as the Tagus, and becomes formid-
able to the Arabs.
885 Paris besieged by the Normans.
893 Alfred the Great succeeds in destroying the Danish power in England.
904 The Russians before Constantinople.
919 The House of Saxony upon the throne of Germany.
961 Otho the Great joins Italy with Germany, and
962 Renews the imperial dignity.
987 The race of Capet upon the throne of France.
991 The arithmetical figures introduced into Europe by the Arabians.
1014 Canute the Great, king of Denmark, ascends the throne of England.
1030 Dismembering and downfall of the caliphat of Cordova.
1038 End of the empire of the Ommayades in Arabian Spain. The Moors.
1042 The Danes expelled from England. Edward the Confessor.
1056 Milan becomes a republic; afterwards Pisa, Genoa, Pavia, &c.
1066 Battle of Hastings. William, duke of Normandy, conquers England.
Probable beginning of Tournaments.
1073 Gregory VII. (Hildebrand) Pope.
1074 Bull of this pontiff against the investiture and marriage of priests.
1076 The emperor, Henry IV. deposed by the Pope.
1080 Doomsday-book begun. Finished, 1086.

1085 Alphonso of Castile takes Toledo and Madrid from the Moors.
1086 Order of Carthusians.
1087 William the Conqueror invades France.
1095 Council held at Clermont. Origin of the Crusades.
1096 First Crusade.
1097 The Almoravides in the Arabian part of Spain.
1099 Capture of Jerusalem. Godfrey of Boulogne king. Institution of the Knights of St. John.
1106 Henry I., king of England, joins Normandy to his kingdom.
1108 Louis VI., king of France, encourages corporations as a security against the feudal lords, and their vassals.
1119 Order of the Templars instituted.
1124 Musical Notes invented.
1135 Alphonso III. of Leon and Castile, master of Spain.
1147 Second Crusade under Conrad III. and Louis VII. Alphonso seizes upon Lisbon. Moscow founded.
1150 Abelard. Scholastic philosophy of Aristotle taught.
1154 The Plantagenets (House of Anjou) ascend the English throne.
1163 London Bridge first built of stone.
1172 Henry II. conquers Ireland. Alphonso I., king of Portugal, takes Murcia from the Almoravides. [duced into commerce.
1180 Downfall of the House of the Guelphs. Bills of Exchange intro-
1186 Sept. 16. Conjunction of all the planets at sun-rise.
1187 Saladin destroys the kingdom of Jerusalem.
1189 Third Crusade under Frederic I., Philip II., and Richard Cœur de Lion.
1190 Knights of the Teutonic Order instituted.
1191 The Crusaders conquer Ptolemais.
1192 Battle of Ascalon, in which Richard defeated Saladin. [sities.
1200 First mention of the Mariner's Compass. Establishment of Univer-
1202 Fourth Crusade under Boniface. Marq. of Montferat.
1204 The Crusaders take Constantinople. Origin of the Inquisition in Languedoc. Dominicans and Franciscans.
1206 Gengis Khan; Empire of Mogul. Paris University.
1208 Crusade against the Albigenses (till 1229).
First Charter to the City of London.
1214 Roger Bacon.
1215 Magna Charta, the basis of the English Constitution.
1217 Fifth Crusade, under Andrew, king of Hungary.
1218 Switzerland becomes an integral province of the German Empire.
1220 Astronomy and Geography introduced into Europe by the Moors.
1222 Basis of the Hungarian Constitution. The assemblage of States of France called a Parliament. Salamanca University.
1224 Thomas Aquinas.
1228 Sixth Crusade, under the emperor Frederic II.
1236 The Moguls penetrate into Russia, and take Moscow. Mogul empire.
1248 Seventh Crusade, under Saint Louis, king of France. [tables.
1253 Alphonso, king of Castile, constructed his celebrated astronomical
1258 The Moguls destroy the caliph of Bagdad.
1261 Michael Palæologus conquers Constantinople.
1265 Dante born (*d.* 1321).
1270 Saint Louis dies before Tunis.
1279 The Moguls subdue the whole of China.
1282 Sicilian Vespers.
1291 End of the Crusades.
1296 Edward I., king of England, subdues Scotland.
1299 Spectacles invented.
1300 Boniface VIII. Albufeda. Raymond Lully.
1301 The Princes royal of England created Princes of Wales.
1302 Cambridge University.
1308 Helvetic Confederation. William Tell.

1310 Capture of the Isle of Rhodes by the Knights of St. John of Jerusalem. Chimnies used in domestic architecture.
1312 The Order of Templars is entirely suppressed by Pope Clement I. [and by Philip le Bel.
1313 Boccaccio born (*d.* 1375).
1314 Battle of Bannockburn.
1319 University of Dublin.
Catalonia and Valencia united to Arragon. [in France.
1328 Scotland becomes independent. Robert Bruce. House of Valois
1341 Petrarch crowned at Rome (*b.* 1304, *d.* 1374).
1345 First mention of gunpowder in France. Fire-arms used.
The Canaries discovered by the Genoese.
1347 First German University at Prague. Rienza, Tribune at Rome.
Battle of Durham; David, king of Scots, taken prisoner.
1349 The plague desolates Europe. Persecution of the Jews.
1354 Inez de Castro. Foundation of the Order of the Garter.
1356 Battle of Poictiers. John, king of France, taken prisoner by the Black Prince (of Wales). Maupertius.
1357 Coals first used in London.
1361 The Turks conquer Adrianople, and establish themselves in Europe.
Vienna University.
1362 John Wickliff, Reformer in England.
1364 Philip the Bold, duke of Burgundy.
1369 Timour, or Tamerlane, the Mogul conqueror.
1371 The Stuarts upon the throne of Scotland.
1384 First navigation act in England.
1386 Windsor Castle built.
1388 The battle of Otterburn.
1399 The House of Lancaster ascended the throne of England.
1400 John Huss, a disciple of Wickliff, reformer in Bohemia.
1402 Bajazet defeated by Tamerlane.
1405 Death of Tamerlane.
1411 University of St. Andrew founded.
1414 Council of Constance. [by Henry V.
1415 John Huss burnt. Capture of Ceuta. Battle of Agincourt won
1417 First mention of the Bohemians (Gipsies) in Europe. The Hussites chuse Ziska for their chief.
1418 Madeira discovered.
1429 The Maid of Orleans. [burnt.
1430 Charles VII. crowned at Rheims. Henry VI. at Paris. Joan of Arc
1432 The Portuguese discover the Azores.
1433 Lisbon becomes the seat of government instead of Coimbra.
1436 John Guttenberg (*d.* 1466) invents the art of Printing.
1437 The House of Hapsbourg-Austria on the throne.
1442 Beginning of the Slave Trade.
1444 Discovery of the Cape de Verd islands.
1445 Wars of the red and white roses.
1446 Inundation at Dort; 100,000 drowned.
1453 Mahomet II. takes Constantinople. The English lose all their possessions in France, except Calais.
1454 University of Glasgow founded.
1457 Glass first made in England.
1464 Stages, Diligences, and Posts in France.
1470 Publication of the first Almanac.
1471 Printing introduced into England, by W. Caxton.
1472 Lorenzo de Medicis.
1477 University of Aberdeen founded.
1478 Inquisition in Spain. Cardinal Mendoza.
1479 Union of Castile with Arragon.
1481 End of the domination of the Tartars in Russia.
1485 The House of Tudor ascends the throne of England. Union of the two roses. Battle of Bosworth Field. Death of Richard III.

1486 Diaz discovers the Cape of Good Hope. [covers America.
1492 Granada conquered by Ferdinand I. Christopher Columbus dis-
1495 Diet held at Worms.
1496 Cabot discovers the island of Newfoundland. [de Gama.
1498 The Portuguese discover the passage to the East Indies by sea. Vasco
1499 The Moors expelled from Castile.
1500 Alvarez de Cabral discovers the Brazils.
1505 Almeyda sails to the East Indies.
1508 Porto Rico, Jamaica, and Cuba, colonized by the Spaniards.
1510 to 15 Goa, Malacca, Ormus, conqd. by the Portuguese. Albuquerque.
1512 Navarre united to Spain by Ferdinand the Catholic.
1513 Battle of Flodden.
1517 Luther (*b.* 1483, *d.* 1546) publishes at Wittenberg disputations against indulgences. The Turks conquer Syria and Egypt.
1519 First Voyage round the World by Magellan.
1521 Luther at the Diet of Worms. Gustavus Vasa, at the head of the Dalecarlians, defeats the troops of Christiern II. Discovery of Manilla, of the Ladrones, and of the Moluccas. Conquest of Mexico.
1522 The Ottomans seize upon Rhodes. [subdue Chili.
1523 Zwinglius (*b.* 1484, *d.* 1531) Reformer at Zurich. The Spaniards
1525 A. de Brandenbourg, Great Master of the Teutonic Order, makes himself hereditary duke of Prussia. Francis I., king of France, prisoner at Pavia.
1526 Moldavia and Wallachia subjected to the dominion of the Ottoman
1527 Death of Albert Durer (*b.* 1471). [Porte.
1528 Conquest of Peru.
1529 The Turks before Vienna.
1530 Confession of Augsbourg.
1533 Death of Ariosto (*b.* 1474). [Supremacy.
1534 Henry VIII. becomes the head of the English Church. Oath of
1535 The Anabaptists at Munster. Establishments of the Spaniards at
1536 Death of Erasmus (*b.* 1467). [Buenos Ayres.
1539 Suppression of Religious Houses in England and Wales.
1540 The Order of the Jesuits confirmed by Pope Paul III. John Calvin (*b.* 1509, *d.* 1564). Reformation at Geneva. Variation of the Com-
1543 Death of Copernicus (*b.* 1473). [pass discovered by Cabot.
1544 Lutheranism introduced into Sweden.
1545 Council of Trent.
1547 Orange trees brought from China to Portugal.
1549 Telescopes invented. [of Passau.
1552 Maurice, elector of Saxony, forces Charles V. to conclude the treaty
1553 The English go by sea to Archangel. Rabelais dies (*b.* 1483).
1560 Death of Melancthon (*b.* 1497).
Reformation in Scotland. Knox.
1565 Gesner (*b.* 1516).
1567 Prince William of Orange; assassinated, 1584. Belgic refugees establish manufactures in England.
1571 Selim II. conquers Cyprus. Victory of the Austrians, near Lepanto.
1572 Massacre of St. Bartholomew (24 August).
1575 Leyden University.
1580 Portugal united to Spain. Tycho Brahe (*b.* 1546, *d.* 1601).
Drake sails round the world. Parochial registers kept in England.
1581 The United Provinces declare themselves independent. Gregorian Calendar. The duke of Alva occupies Portugal by order of Philip II.
1583 Tobacco introduced into England.
1584 The Crimea under the dominion of the Turks.
1587 Mary Stuart, queen of Scotland, put to death.
1588 Defeat of the Spanish Armada.
1589 The House of Bourbon ascended the throne of France (Henry IV.)
1595 The Dutch establish factories at Java. Death of Tasso (*b.* 1544).
1598 Edict of Nantz. Casaubon (*b.* 1559, *d.* 1614).

1600 East India Company established.
1602 Company of Dutch trading to the East Indies.
Decimal arithmetic invented.
1603 Crowns of England and Scotland united in the House of Stuart.
1604 Gunpowder Plot.
1609 The Moors expelled from Spain. Union of Protestant States in Germany. The English occupy the Bermudas in the West Indies. Discovery of the Satellites of Jupiter.
1610 Discovery of Hudson's Bay. Henry IV. assassinated by Ravaillac.
1611 The Poles seize upon Smolensko, and burn Moscow.
Baronets first created.
1613 The House of Romanoff ascended the throne of Russia.
1614 Invention of Logarithms by Lord Napier.
New River brought to London by Sir Hugh Middleton.
1616 Death of Shakspeare (*b.* 1564). Death of Cervantes (*b.* 1547).
1618 Commencement of the Thirty years' war.
1619 Hervey (*b.* 1577, *d.* 1657) discovers the circulation of the blood.
1624 Massacre at Amboyna.
1625 (28, 29, 32, &c.) The English take posssession of Barbadoes, Bermuda, Providence, Antigua, Anguilla, in the West Indies.
1626 Death of Lord Bacon (*b.* 1560).
1630 Death of Kepler (*b.* 1571). Des Cartes (*b.* 1596, *d.* 1650).
1632 Battle of Lutzen. Death of Gustavus Adolphus.
1634 Death of Wallenstein. Battle of Noerdlingen. The Dutch take Curaçoa from the Spaniards.
1635 Foundation of the French Academy. Alliance of France and Swe-
1636 Utrecht University founded. [den against Spain and Austria.
1640 Portugal shakes off the yoke of Spain. The House of Braganza. Assembling of the Long Parliament in England.
1642 Death of Galileo (*b.* 1564). Castelli and Toricelli his disciples.
1643 Barometer invented by Toricelli.
1644 Death of Hugo Grotius. Dan. Heinsius (*b.* 1580, *d.* 1655).
1648 Peace of Westphalia (24 Oct.) Confirmation of the treaty of Passau. Spain acknowledges the independence of the Low Countries.
1649 Charles I., king of England, beheaded. Cromwell.
1651 Sect of Friends (Quakers) appeared in England.
Navigation Act passed in England. [conquered by the Russians.
1654 The Cossacks pass under the dominion of Russia. Smolensko, &c.
1655 The English take Jamaica from the Spaniards. Persecution of the Valdois by Charles Emanuel II.
1656 Frederic William, Elector of Brandenburg, procures the recognition of the independence of Prussia. Huygens (*b.* 1629, *d.* 1695).
1662 Royal Society established.
1663 The English take Bombay. Locke (*b.* 1632, *d.* 1704). Dryden (*b.* 1631,
1665 Great Plague in London. [*d.* 1701).
1666 Tea first imported into England.
The great fire in London.
1667 The Dutch take Surinam. Milton.
1668 Peace of Aix-la-Chapelle. Molière (*b.* 1620, *d.* 1673). La Fontaine (*b.* 1621, *d.* 1695).
1670 Corneille (*b.* 1606, *d.* 1684). Racine (*b.* 1639, *d.* 1669,) Boileau
1671 The Danes seize upon St. Thomas. (*d.* 1711),
1677 First war between Russia and the Ottoman Porte. Russia seizes on the Ukraine. Death of Spinosa (*b.* 1632).
1678 Peace of Nimeguen.
The Habeas Corpus act passed.
1679 Louis XIV. takes possession of Alsace, and
1681 of Strasbourg. [on Tobago.
1682 Foundation of Philadelphia, by William Penn. The French seize
1685 Revocation of the Edict of Nantz. Massacres. 50,000 Reformed
1686 Air Pump. Calderon (*b.* 1601, *d.* 1687). [quit France.

1688 The Revolution. William III., Prince of Orange, Stadtholder of the United Provinces, lands in England. Flight of James II.
1689 Toleration act passed.
Episcopacy abolished in Scotland.
1690 The English establish themselves at Calcutta.
Battle of the Boyne.
1692 Battle of La Hogue.
1693 Bank of England established.
1697 Peace of Ryswick. The Dutch take Saint Eustatia.
1700 Northern war till 1721. Charles XII., and Peter the Great at Pernau. Academy at Berlin.
1701 War of the succession in Spain till 1714. Prussia erected into a
1702 Death of K. William. Anne. [kingdom.
1703 Foundation of St. Petersbourg.
1704 Capture of Gibraltar by the English.
Battle of Blenheim.
1706 England and Scotland united under the same Parliament.
Battle of Ramilies.
1708 Battle of Oudenarde.
1709 Charles XII. at Bender, after the battle of Pultowa.
Battle of Malplaquet.
1710 Conquest of Livonia, Esthonia, and Courland by Peter the Great.
St. Paul's rebuilt.
1713 Peace of Utrecht. Philip of Anjou, king of Spain. Gibraltar, Minorca, Hudson's Bay, Newfoundland, and Saint Christopher's are ceded to England; the Low Countries to Austria. The Pragmatic sanction. Charles VI. [throne of England.
1714 Peace of Rastadt. George I., Elector of Hanover, ascends the
1715 Rebellion in Scotland in favour of the Stuarts.
1716 Death of Leibnitz.
Septennial act passed.
1720 Inoculation introduced into England.
1721 Peter the Great takes the title of Emperor of all the Russias.
1725 Death of Newton (*b.* 1642).
1726 Academy of Petersburg founded.
1730 Fahrenheit's Thermometer. Swift (*b.* 1667, *d.* 1744). Young (*b.* 1681, *d.* 1765). Pope (*b.* 1688, *d.* 1734). Thomson (*b.* 1700, *d.* 1748). Boerhaave (*b.* 1668, *d.* 1738).
1736 The Porteus mob in Edinburgh.
1737 Gottingen University.
1739 Nadir Schah reduces the Mogul emperor to extremities.
Rebellion in Scotland.
1740 War of the Austrian succession, till 1748.
1742 Peace of Breslau and of Berlin. Frederick the Great acquires Lower-Silesia, and the greater part of Upper-Silesia.
1743 Battle of Dettingen.
1744 Anson sails round the world.
1745 Battle of Fontenoy.
1746 Battle of Culloden.
1748 Peace of Aix-la-Chapelle. Klopstock (*b.* 1724, *d.* 1803). Lessing (*b.* 1729, *d.* 1781). Montesquieu (*b.* 1698, *d.* 1755). Reaumur (*d.* 1757). Voltaire (*d.* 1778). Rousseau (*b.* 1712, *b.* 1788). Buffon (*b.* 1707, *d.* 1788). Goldoni (*b.* 1707, *d.* 1792). Linnæus (*b.* 1707, *d.* 1778).
1750 Westminster-bridge finished.
1752 New style adopted in Britain.
1753 British Museum established. [in Bengal.
1755 Great earthquake at Lisbon. Lord Clive obtains Bahar and Orissa
1756 The Seven years' war.
1759 Expulsion of the Jesuits from Portugal. Pombal.
Battle of Quebec. Death of Wolfe.
Earthquake at Lima.

1760 Jesuits expelled from France.
1761 Family compact of the Bourbons.
1763 Peace of Paris. France cedes to England Canada, C. Breton, St. Vincent, St. Domingo, Tobago, and the coast of Senegal: Spain cedes Florida.
1764 Taxes increased in the English Colonies of North America.
The Order of the Jesuits suppressed in France.
1767 The Jesuits expelled from Spain.
1768 France purchases the island of Corsica from the Genoese.
Royal Academy established.
1770 Tax upon Tea in North America.
Blackfriars-bridge finished.
1771 Cooke's first voyage round the world.
1772 First partition of Poland. Struensee put to death.
1773 Pope Clement XIV. suppresses the Order of the Jesuits. Insurrection at Boston. A cargo of tea flung into the sea.
1774 By the treaty of peace of Rutschuk, Russia extends its frontiers towards Turkey. The Crimea independent of the Porte. Blockade of the port of Boston, and Congress of 12 provinces at Philadelphia.
1775 War of American Independence. General Congress of 13 provinces.
1776 4th July, the United States of North America declared independent.
Death of Hume and of Adam Smith.
1778 War of the Bavarian succession. Alliance between France and the United States of North America.
Siege of Gibraltar.
1780 War of England against Hyder Ali.
Riots in London.
1781 Kant (*d.* 1804). Schiller (*b.* 1759, *d.* 1805.) Wieland (*b.* 1733, *d.* 1813).
1782 England acknowledges the independence of the United States of North America (30th Nov.) The Crimea and Kuban fall under the dominion of Russia.
1783 Great earthquake in Calabria. Peace of Versailles between England and North America; France, Spain (3d Sept.); Holland (20th May,
1785 German League. [1784).
1787 First assembly of the Notables.
1788 Second assembly of the Notables.
1789 Beginning of the French Revolution. General assembly of the States at Versailles, as a national assembly; suppression of privileges, and of feudal rights and tithes. Insurrections in the Low Countries. [France.
1790 Suppression of all religious orders, monasteries, the nobility, &c. in
1791 14th Sept. acceptance of the first constitution by Louis XVI. Second national legislative assembly.
1792 First coalition against France. Attack on the Tuileries. French Republic. Peace of Jassy.
1793 21st January, Louis XVI. beheaded. Second constitution. The Reign of Terror. 16th October, the queen beheaded. Toulon. Bonaparte. Second partition of Poland. Great Poland and Dantzic are ceded to Prussia; Russia obtains Lithuania and Volhinia.
1794 Fall of Robespierre. Revolution in Poland. Kosciusko. Death of Lavoisier (*b.* 1743). Habeas Corpus Act suspended. The telegraph invented. Bruce, the traveller *d.* Lord Howe's victory, June 1. Exchequer Bills issued. American minister received at Paris. Retreat of the British army in Flanders. Battle of Praga, 30,000 Poles butchered by Suwarrow. Trial of John Horne Tooke. The Duke of York leaves the continent.
1795 Third constitution. Normal and central schools in France. Third partition of Poland between Prussia, Austria, and Russia. Suppression of the stadtholdership of the Low Countries. The English take the island of Ceylon, and in 1797 Trinidad, &c. Bonaparte victorious in Italy. French entered Holland, and Stadtholder arrived

in England. Suspension of the Habeas Corpus Act continued. Warren Hastings acquitted. Mungo Park began his travels. Mobs and riots in various parts of England. Assault on George III.

1796 National Institute of Arts and Sciences at Paris founded. Ceylon taken. Irish Insurrection act passed. Bonaparte crossed the Alps, and penetrated into Italy. Battle of Lodi, &c. Retreat of Moreau. English goods prohibited in France. Great quantities of ice in the Thames. French fleet destined to invade Ireland dispersed, after having touched at Bantry Bay. Several victories at sea.

1797 Peace of Campo-Formio. Ligurian and Cisalpine Republic. French extend their conquests in Italy. Victory of St. Vincent (Feb. 14). Various petitions for the dismissal of ministers. Mutiny at Sheerness. Battle of Camperdown. Political discontent in England. Death of John Wilkes. Rebellion in Ireland.

1798 Congress of peace of Rastadt. Bonaparte in Egypt. Independence of St. Domingo. Rebellion in Ireland continues. A detachment of French land in Ireland. Battle of the Nile. Income Tax imposed. Cold 16° below zero in London.

1799 Second coalition against France (Suwaroff), 9th Nov. Revolution of the 18th Brumaire. Death of Pius VI. at Valencia, 15th December. Fourth Constitution. Bonaparte First Consul. Tippoo Saib conquered by the English. Division of Mysore. Bonaparte in Syria and Egypt. Sir Sydney Smith at Acre. Seringapatam taken. Expedition to the Helder, and the Texel. Suwarrow's campaign. British and Russians leave Holland. Mr. Canning's first official appointment.

1800 Peace with the Vendeans. Victories of Bonaparte in Italy (Marengo). Republic of the Ionian Isles (Parga). Kleber dies in Egypt. The East India Company acquire the Carnatic. Royal Institution founded. Great scarcity of provisions. Peace of El Arisch.

1801 Arcot, &c. The English take possession of Malta. Nelson before Copenhagen. Peace of Luneville. Death of Lavater (*b.* 1741). Union with Ireland. Planet Ceres discovered. Expedition to Egypt. Battle of Alexandria. Death of Gen. Abercromby. Peace signed.

1802 Peace of Amiens. Bonaparte Consul for life. Execution of Governor Wall for cruelty. Despard's conspiracy.

1803 War between France and Great Britain. France sells Louisiana to the United States of North America. The Negro chiefs proclaim the independence of St. Domingo. Duke d'Enghien shot. Victories in India.

1804 Napoleon Bonaparte proclaimed Emperor of the French. Francis I. Emperor of Austria. The Jesuits restored by Pius VII. Ohio becomes a North American state. Dessalines, Emperor of Hayti.

1805 Napoleon, King of Italy. Third coalition against France. 26th Dec. peace of Presbourg. Bonaparte offered peace. Trial of Lord Melville. Surrender of Ulm. Battle of Trafalgar. Death of Nelson.

1806 The Electors of Bavaria, Wirtemberg, and Saxony take the title of king. Confederation of the Rhine. Continental System. Eugene, Viceroy of Italy. Dissolution of the German Empire. Joseph Napoleon, king of Naples. Louis Napoleon, king of Holland. War between France and Prussia. W. Pitt *d.* Henri and Petion at St. Domingo. Mr. Fox and his friends in office. British manufactures prohibited in America. Battle of Jena.

1807 Peace of Tilsit. Bombardment of Copenhagen. The Slave-trade abolished by the English Parliament. The royal family of Portugal embark for Brazil. French troops enter Spain. Monte Video taken. Battle of Eylau. Battle of Tilsit. Bonaparte declares Britain in a state of blockade. Change of the administration (Duke of Portland.)

1808 Joseph, king of Spain. Joachim Murat, king of Naples. New nobility in France. Interview between Alexander of Russia and Bonaparte at Erfurt. Alliance with Spain and Portugal. Convention of Cintra.

1809 New war between Austria and France. Peace of Vienna. Revolution in Sweden: Gustavus IV. and his heirs excluded from the throne. Sweden cedes Finland to Russia. Retreat and death of Sir John Moore. Colonel Wardle's charges against the Duke of York. Battle of Talavera. Mr. Perceval Prime Minister. Expedition to Walcheren.

1810 Napoleon marries Maria Louisa, princess of Austria. Union of Holland and the coasts of the German sea, as far as Lubeck, with France. Bernadotte, elected prince-royal of Sweden, adopted by Charles XIII. Sir Francis Burdett committed to the Tower. Battle of Busaco.

1811 Maskelyne *d.*

1812 War between France and Russia. Battle of Moskwa, 7th Sept. Burning of Moscow. Retreat of the French, 18th Oct. War between England and North America. Peace concluded at Bucharest between Russia and the Ottoman Porte; the Pruth the frontier. John Horne Tooke *d.* Perceval assassinated. Battle of Salamanca.

1813 1st March, Prussia in league with Russia. All Europe take arms again to recover their independence. Battle of Lutzen, the 2d of May; of Vittoria, the 21st of June. Manifesto of Austria against France, 10th August. Battle of Gros-Beeren, 23d August; of Katzbach, 26th August; of Dresden, 27th August; of Culm, 30th August; of Dennewitz, 6th September; of Leipsic, 16th, 18th, and 19th October; of Hannau, 30th and 31st October. The French evacuate Germany and Spain. The English pass the Bidassoa, 17th October, and enter France. Treaty of Valencia. William, Prince of Orange, is recalled.

1814 Peace of Kiel, 14th Jan. Norway ceded to Sweden; Britain retains Heligoland. Battle of Brienne, 1st and 2d Feb.; of Orthes, 27th Feb.; of Laon, 9th March; of Fère Champanoise, 25th March. The Allied Sovereigns enter Paris, 31st March. Abdication of Napoleon, 11th April. Louis XVIII. enters Paris 3d May. Ferdinand VII. enters Madrid 14th May. Suppression of the Cortes. Re-establishment of the Inquisition; of the Jesuits' Colleges, &c. Arrests and executions. Restoration of the order of Jesuits, 7th Aug. Peace between France and the Allied Sovereigns, 30th May. France is confined within her frontiers as at the 1st Jan. 1792. Sweden restores Guadaloupe, and Portugal cedes Guiana, to France. Holland falls under the dominion of the Prince of Orange. Hanover made a kingdom, 26th Oct. Norway is joined to Sweden, 20th Oct. Congress at Vienna, 3d Nov. Genoa united to Sardinia, 12th Dec. Indictment of Lord Cochrane and others. Jubilee.

1815 Napoleon Bonaparte returns to France, 1 March. Neapolitans defeated by the Austrians at Tolentino, 3 May. Taking of Naples, 20 May. Battle of Waterloo, 18 June. Paris surrendered, the second time, to the Allied Powers, 3 July. Louis XVIII. made his second entry 8 July. Bonaparte banished to St. Helena, 12 Aug. The Holy Alliance concluded between the Emperors of Austria and Russia and the King of Prussia, 26 Sept. Joachim Murat, ex-king of Naples, shot 15 Oct. Foundation of the Republic of the Ionian Islands, 5 Nov. Peace between the Allied Powers and France, 20 Nov.: the frontiers to remain as in 1790. The United Provinces of Buenos Ayres declare their independence. Riots about the Corn Laws. Embassy to China. Lord Cochrane escaped from the King's Bench Prison, and voted in Parliament.

1816 Algiers bombarded by the fleet under Lord Exmouth. The captives

set free, 27 Aug. Riots in London. Spa-fields mob. Death of Sheridan.

1817 Disturbances in various parts of England. Habeas Corpus Act suspended. Cash payments resumed at the Bank. Princess Charlotte d. Abolition of the Slave trade by France, Spain, and Holland.

1818 Accession of Charles John (Bernadotte) to the throne of Sweden, 5 Feb. Negociation between the Allied Powers and France, concerning indemnities, 25 April. Congress at Aix-la-Chapelle. Evacuation of the French territory. Distress of the disbanded seamen.

1819 Discontents in the manufacturing districts of England. Southwark bridge opened. Lord Sidmouth's circular. The Manchester meeting.

1820 Jan. 1. Commencement of the Spanish revolution: proclamation of the constitution proposed by the Cortes in 1812. Jan. 29, death of George III. Feb. 13, Duke de Berri assassinated. Feb. 23, the Cato-street plot. March 8, the King of Spain swears to the constitution of the Cortes; suppression of the inquisition. March 25, the Jesuits are expelled from Russia. May 15, commencement of the revolution at Naples (Carbonari). July 5, Act of accusation against the Queen of England. Sept. 7, remarkable eclipse of the sun. Oct. 1. Constitutional Junta in Portugal. Oct. 8, Death of King Henri in the island of Hayti. Oct. 24, ratification of the treaty by which Spain cedes Florida to the United States of North America.

1821 Jan. 1. A revolution in Brazil. Jan. 8, Congress of Leybach. Austrian army occupies Naples. Mar. 6, Insurrection in Moldavia and Wallachia. 25, The Greeks join the insurrection. Mar. 10, till April 10, disturbances in Piedmont; the king resigns in favour of his brother. April 23, the Greek Patriarch put to death at Constantinople. May 5, death of Napoleon Bonaparte. July 4, the King of Portugal returned to his capital. July 19, Coronation of George IV. Queen Caroline died. July 20, Austrian troops occupy the kingdom of Sardinia. Aug. 12, the Russian Ambassador quits Constantinople. Aug. 17, George IV. visits Dublin. Oct. 10, public entry of George IV. into Hanover. Dec. 1, the Spanish part of St. Domingo declares itself independent. Catholic Bill passed the Commons, lost in the Lords.

1822 Jan. 1, the Greeks declare themselves free. Jan. 26, the Grand-Duke Constantine of Russia renounces the right of succession. Feb. 11, the Prince Royal of Brazil sends back the Portuguese troops, and (Feb. 16) institutes a representative government. March 1, sitting of the Ordinary Cortes at Madrid. March 8, the United States of North America acknowledge the independence of those of South America. May 21, Don Augustin Iturbide made Emperor of Mexico. July 2, Massacres in Madrid. July 8, victories by the Greeks at Larissa, Thermopylæ, and Salonica, and July 14, at Thermopylæ. Aug. 14, Army of the Faith. Oct. 1, The King of Portugal swears to the new constitution. Oct. 12, Independence of Brazil; the Prince Regent proclaimed Emperor. Oct. 20, Congress at Verona. Great distress in Ireland. George IV. visits Scotland. Death of Lord Castlereagh.

1823 Jan. 9, the Spanish Cortes reject the mediation of the cabinets of Petersburg, Vienna, and Berlin. 20 March, removal of the king of Spain to Seville, thence to Cadiz. 7 April, the French army enters Spain. 19 April, Iturbide dethroned. 23 May, the French enter Madrid. 5 June, the king of Portugal suppresses the constitution. 25 June, the French invest Cadiz. Guatemala declares itself independent of Spain and Mexico. 20 July, Mexico acknowledges the independence of Guatemala. 31 Aug., Battle of the Trocadero before Cadiz. 15 Sept., Riego taken prisoner, and (27

Nov.) put to death at Madrid. 1 Oct., the king of Spain resumes his despotism, and abolishes all the proceedings of the Cortes, from 7 March, 1820. End of the Spanish Revolution. 4 Oct., proclamation of the Mexican Constitution by the President Vittoria. 23 Oct., Alliance between Colombia and Mexico, ratified 30 June, 1824. 30 Oct., the Government of Great Britain sends Consuls to the new States of South America. London Bridge ordered to be rebuilt.

1824 21 Jan., the English troops defeated by the Ashantees. 10 Feb., Bolivar is named Dictator by the Congress of Peru. 5 March, Lord Hastings, the Governor General of India, declares war against the Burmese. 19 April, Death of Lord Byron. 30 April till 9 May, Disturbances in Lisbon: departure of Prince Miguel. 5 May, the English take Rangoon. 16 June, Commercial Treaty between Great Britain and Denmark. 3 July, the Capitan-pacha takes and destroys Ipsara. 16 July, Iturbide effects a landing near Soto la Marina: the 19th July, he is taken and shot. 22 July, Peace between Great Britain and Algiers. The English drive the Ashantees from Cape Coast Castle. 6 Aug., Bolivar defeated Canterac near al Samos. The Capitan-pacha repulsed with the loss of three ships, &c. 16 Sept., Death of Louis XVIII.; Charles X. succeeds. 3 Oct. Treaty between the States of America and Colombia. 6 Oct., Sea-fight near Mitylene and Scio between the Turks and Greeks, in which the former were worsted; two ships burnt. 12 Oct., Provisional Government in Greece: Conduriotti and Panuzzo Notara, Presidents. 19 Nov., Hurricane on the coasts of England, Holland, Denmark, Sweden, and Russia. Inundation of Petersburg. 23 Nov., total evacuation of Moldavia by the Turks. Disorder prevails in Greece; Colocotroni hoists the standard of revolt against the Government. Chancery Commission appointed. Skeleton of a mummy found in Essex. Mechanics' institutions began. Union of the Scotch dissenters. Catholic rent collected.

1825 1 Jan., Communication by Mr. Canning of the intention of Great Britain to negotiate treaties of commerce with the Governments of Colombia, Mexico, Buenos Ayres, &c., upon the basis of the recognition of their independence respectively. 11 Jan., Colocotroni submits to the Greek Government. 2 Feb., Treaty of Commerce concluded at Buenos Ayres between Great Britain and the United Provinces of Rio de la Plata. 4 Feb., Inundations in Holland and on the northern coasts of Germany. 9 Feb., Mr. Adams elected for four years President of the United States of North America; he enters upon his functions March 4. 26 Feb, Landing of Ibrahim Pasha between Coron and Modon. 28 Feb., Convention concluded between Russia and Great Britain, for the freedom of navigation, the commerce and fishery on the Pacific Ocean, and the frontiers of the North West coasts of America. 10 March, Bolivar is again invested with the Dictatorial power in Peru. 13 March, Treaty of Alliance concluded between Colombia and Guatemala. 17 April, Decree of the king of France, confirming the independence of St. Domingo in consideration of a money-payment. 18 April, Treaty of amity, commerce and navigation concluded between Great Britain and Colombia. 19 April, the Egyptians defeat the Greeks near Forgi. 29 April, the Mexican government ratifies the treaty of commerce and navigation concluded between Great Britain and Mexico. 12 May, Miaulis burns, in the Port of Modon, one corvette, three brigs, and six transports belonging to the Egyptians. 18 May, Navarino surrenders to Ibrahim Pasha. 22 May, Colocotroni set at liberty by the Greek government. Coronation of Charles X. at Rheims. 1 June, the Greeks defeated by Ibrahim Pasha. 2 June, the Greek fleet defeats that of the Capitan Pasha between Cape Oro and the Isle of Andros. Ibrahim Pasha takes

Calamata, and 23 June, Tripolizza. 5 July, Ibrahim Pasha defeats Colocotroni near Tricorpha. 21 July, the government of the Netherlands opens its ports in the East Indies to the ships of all nations. 24 July, Resolution of the provisionary government of Greece to have recourse to the protection of England. 4 Aug., the Greek fleet forces the Ottoman squadron to quit the latitude of Missolonghi. 6 Aug., the provinces of Upper-Peru declare their independence, and take the name of the Bolivian Republic. 29 Aug. Treaty concluded between Portugal and Brazil. 26 Sept., Treaty of commerce and navigation concluded between Great Britain and the Hanse towns. 15 Nov., the king of Portugal ratifies the treaty concluded with Brazil, and takes the title of Emperor. 18 Nov., the Spaniards entirely evacuate Mexico. 1 Dec., Death of Alexander, Emperor of Russia. 1, 2, 5 Dec., General Campbell defeats the Burmese near Prome. Act against the Catholic association. Petitions against the Corn Laws. Great commercial distresses, and failures of bankers.

1826 Jan. 3, war between Brazil and Buenos Ayres. Bhurtpore, besieged from 23 Dec. 1825, is stormed by the English troops under Lord Combermere. 20 Jan., Sir A. Campbell defeats the Burmese near Malloun. 22 Jan., Capitulation, and 23, surrender of Callao; Peru entirely evacuated by the Spaniards. 26 Jan., Treaty of navigation concluded between Great Britain and France. 28 Jan., the Greeks disperse the Ottoman fleet: Missolonghi is revictualled. 24 Feb., Peace concluded at Yandaboo between the East India Company and the Burmese. The Burmese pay one million pounds stering, and surrender a great extent of territory. Death of D. John VI., Emperor and king of Portugal. 23 April, Ibrahim Pasha takes the ruins of Missolonghi. Resolved by the national assembly at Epidaurus, to invite the English Ambassador to Constantinople, to arrange that the Greeks should govern themselves, by paying a yearly tribute to the Porte. Don Pedro gives a charter to Portugal, and confirms (26 April) the Regency. 2 May, Don Pedro abdicates in favour of his daughter, Donna Maria di Gloria. Decree issued by the government of Mexico for the suppression of titles. 7 May, Ibraham Pasha disperses and drives the Greeks from the heights which command the road of Calavista. 8 May, Resolved by the Mexican Senate, never to listen to any proposition made by Spain or any other power, unless the basis of it should be the full and entire acknowledgement of the independence of Mexico. 14 May, Denmark celebrates a festival in commemoration of the introduction of Christianity, which happened a thousand years before. 15 May, Earthquake at Grenada. Treaty of amity and of commerce concluded between the East India Company and the king of Siam. 19 May, Treaty of navigation between Great Britain and Sweden. 19 May, Departure of the Ottoman troops from Moldavia and Wallachia. 20 May, Cabinet decree of the king of Prussia, that the commerce and navigation of Great Britain and of its possessions beyond sea, should be treated like those of the most favoured nations, as long as the Prussian subjects should enjoy the advantages granted to them by the Act 6 George IV., chap. 114. 25 May, Opening of the first Congress of the Bolivian republic. 29 May, Resolution of the Porte concerning the organisation of a new army in the Ottoman empire, called *Assakiri mahomédije* (Mahometan army), or *Assakiri dschedidei-mansuroje* (new victorious army). 1 June, Landing of the Greeks near Salonichi, and battle with Omer Pasha. 5 June, the importation of foreign silks into Great Britain, with a duty, permitted from this day. Death of Carl Maria Von Weber, in London. 14 June, Insurrection of the Janissaries in the night of the 14th and 15th

of June, at Constantinople; of which the consequence is, a fresh organisation of the Ottoman army. 15 June, Defeat of the Janissaries; 2 or 3000 are killed on the spot, many others are condemned to be executed. Convocation of a general congress in Chili, to frame a Constitution. 16 June, Firman issued by the Grand Signor, declaring the abolition of the Janissaries. 4 July, Death of the two ex-presidents, Adam and Jefferson, on the 50th anniversary of the declaration of independence of the United States of North America. 9 July, Popular insurrections against the charter, in Portugal, mostly at Chaves, Braganza, Estremos, and Villaviciosa. The insurgents march towards Spain. 11 July, the National Congress constitutes Chili a confederative state. 18 July, the king of Persia, resolved to commence hostilities with Russia, assembles his army near Ardebil. 22 July, Death of Piazzi, the astronomer, at Naples. 24 July, Shock of an earthquake at Mantua. 7 Aug. Victory of the English troops and their allies over the Ashantees. 8 and 9 Aug. Ibrahim Pasha defeated by the Mainotes. 12 Aug. Lord Cochrane arrives at Messina. 14 Aug., the national assembly of Greece is called together in the island of Poros. 15 Aug., the Serasquier Reschid Pasha takes the city of Athens. 19 Aug., the Congress of Lima names Bolivar president of the republic for life. 20 Aug. Attempt by Favier and Kaniakaki to relieve the Greek garrison in the Acropolis, totally failed. 23 Aug. Prorogation of the Parliament of Great Britain till the 2nd Nov., 1826. 28 Aug., an English fleet arrives in the Tagus. 30 Aug. a conflagration which breaks out at Constantinople, reduces 6000 houses to ashes. 3 Sept., the emperor Nicholas crowned at Moscow. 18 Sept., Shock of earthquakes at Cuba. 19 Sept., Sulemn reception of Lord Ponsonby at Buenos-Ayres, ambassador extraordinary of Great Britain. 28 Sept., Russia declares war against Persia. Admission of the Colombian flag to the Ports of France. 30 Sept., Epidemic distempers prevail on the northern coasts of Europe, and particularly in Holland, in consequence of the inundations of 1825, and of the great heats of the summer. 4 October, the Infant Don Miguel takes the oath of fealty to the Portuguese Constitution, at Vienna. 6 Oct., Insurrection raised against the Portuguese Constitution, by the Marquis of Chaves. 15 Oct., Earthquake at Messina. 18 Oct., Lotteries ceased in England. 19 Oct., Death of Talma at Paris. 29 Oct., Betrothing the Infant Don Miguel with the Infanta Donna Maria di Gloria, queen of Portugal, by procuration, at Vienna. 30 Oct., Opening of the sessions of the Cortes, by the Infant-Regent. 13 Nov., Convention concluded between Great Britain and the United States of North America, concerning the indemnities to be granted to the American subjects injured by the war. Bolivar returns to Bogota. 21 Nov., Opening of the Parliament of Great Britain. 23 Nov., Decree issued by Bolivar, by virtue of which he accepts the dictatorship. Treaty concluded between Great Britain and Brazil for the abolition of the slave-trade. 28 Nov., Note of the Spanish government to the Ambassadors of the Allied Powers, in which it is declared that the Spanish government will take no part in the enterprise of the Portuguese rebels, and that measures have been adopted to prevent an invasion of Portugal. 29 Nov., Death of the Marquis of Hastings. 3 Dec., Portugal entreats the assistance of Great Britain. The Portuguese rebels take Lamego. 5 Dec., Message of the President Adams on the opening of the session of Congress. 7 Dec., Death of Flaxman. 10 Dec. Villa Flor defeats the Portuguese insurgents. 11 Dec., Message of the King to Parliament, concerning the assistance which is determined to be sent to Portugal to

sustain the Government and the Regent against the aggressions of the rebels. 12 Dec., Opening of the French chambers. 14 Dec., Earthquake at Granada. 17 Dec., Departure of the first English auxiliary troops for Portugal. 22 Dec., the Portuguese rebels advance from Lamego towards Coimbra. 25 Dec., the first auxiliary troops arrive in Lisbon. 29 Dec., Arrival of the Lord High Commissary Sir Frederic Adam at Corfu.

1827 Jan. 1, The king of France submits to the Chambers a project of law for the suppression of the Slave trade. 5. The Duke of York *d.* 22. The Duke of Wellington is appointed Commander-in-Chief. Feb. 7. Dr. Pelham, the Bishop of Lincoln *d.* 8. Parliament meets pursuant to adjournment. 17. Lord Liverpool attacked by a stroke of apoplexy. 22. Mr. Peel obtains leave to bring in a bill for amending the criminal laws. Mar. 1. Mr. Canning brings forward his resolutions respecting the Corn Laws. 5, 6. Sir Francis Burdett brings the subject of the Catholic Claims before the House of Commons; Majority against the motion, 4. 24. Edward Gibbon Wakefield, William Wakefield, and Frances Wakefield tried and found guilty at Lancaster, for the felonious abduction of Miss Turner. 25. The ship Hecla, Captain Parry, sailed from Deptford on the Northern Expedition. April 10. Mr. Canning is appointed First Lord of the Treasury. 11. The Duke of Wellington resigns. 12. Six other members of the Cabinet resign. Both Houses of Parliament adjourn for the Easter recess. 17. The Duke of Clarence is appointed Lord High Admiral of the United Kingdom. 20. Sir John Copley is created Lord Lyndhurst, and appointed Lord Chancellor. 24. Mr. F. Robinson, Mr. Plunkett, and Sir Charles Abbott are created peers by the several titles of Lord Goderich, Lord Plunkett, and Lord Tenterden. Mr. Canning is appointed Chancellor of the Exchequer. 30. The king holds a court, at which Lord Lyndhurst receives the Great Seal, Mr. Canning the seals of the Chancellor of the Exchequer, Mr. Sturges Bourne those of the Home Department, and Lord Goderich those of the Colonial Department. The king of France disbands the national guard. May 1. The House of Commons resumes its sittings, when Mr. Peel and Mr. Canning enter into explanations respecting the formation of the new ministry. 2. The House of Lords meet, when the late ministers of the old, and some of those of the new cabinet enter into similar explanations. 17. A Bill for dissolving the marriage of Edward Gibbon Wakefield with Miss Turner is brought into the House of Lords. A discussion respecting the new Administration takes place in the House of Lords. Mr. Tierney is appointed Master of the Mint. 18. An alarming accident occurs at the Thames Tunnel, Rotherhithe. 22. The jurisdiction of the Court of Chancery in bankruptcy is discussed in the House of Commons. June 1. Mr. Canning, as Chancellor of the Exchequer, brings forward the Budget in the House of Commons. The Duke of Wellington moves an amendment to the Corn Bill, which being agreed to, the purpose of the bill is annulled. 19. A public dinner is given to Mr. Brougham at Liverpool. 26. The Unitarians' Marriage Bill is carried in the Lords. July 2. Parliament is prorogued by proclamation. 3. The murder of the Rev. Mr. Waterhouse of Huntingdon. 5. The Bank of England resolve upon discounting bills at 4 per cent. 9. The Emperor Nicholas is invested with the Order of the Garter at St. Petersburg. The Russian Fleet, bound for the Mediterranean, arrives in Portsmouth harbour. 16. The Marquis of Lansdowne is sworn in as Secretary for the Home Department. August 5. Mr. Canning's life is declared to be in imminent danger by his physicians. 8. Mr. Canning expires at ten minutes before four o'clock this morning. 11. Lord Goderich is appointed Premier. 16. The funeral of Mr. Canning. 17. His Majesty holds a Court, at which the Duke of Portland is declared

President of the Council. The Duke of Wellington again accepts the Command of the Army. September 3. Mr. Huskisson is appointed Secretary of State for the Colonial Department, and Mr. Herries Chancellor of the Exchequer. 21. The Royal George, of 120 guns, is launched at Chatham. 22. Admiral De Rigny arrives off the port of Navarino. 29. The Aurora Borealis is visible in London with peculiar brilliancy. 29. Captain Parry arrives in London from his unsuccessful expedition to the North Pole. October 6. The Hammersmith Suspension Bridge opened. 20. The naval action of Navarino. 24. The Rev. Robert Taylor found guilty of blasphemy, in the Court of King's Bench. 27. Sir Anthony Hart is appointed Chancellor of Ireland, and Mr. Shadwell, Vice Chancellor of England. November 5. The French Chambers are dissolved, and seventy-six new Peers are created by an Ordinance. 15. Dr. Tomline, Bishop of Winchester, *d.* 30. Mr. Davies Gilbert elected President of the Royal Society in the room of Sir H. Davy. December 7. The Bank of Lisbon suspends its payments. 19. Thirteen new Baronets are created. 30. The Infant, Don Miguel, of Portugal, arrives in London.

IX. STATISTICAL TABLES.

I. The States of Europe.

	STATES.	Surface in sq. miles.	Inhabitants.	Inhab. to each sq. mile.	Military Force.
1	Austria	12153·5	30,006700	2469	*271400
	Hereditary German States	(3578)	(9,986900)	(2791)	
	Gallicia	(1542·5)	(4,102700)	(2659)	
	Hungary	(6175)	(11,756100)	(1903)	
	Italian States	(852)	(4,161000)	(4883)	
2	Cracovia	23	128480	5586	
3	Denmark	2465·50	1,986270	806	
	Denmark only	(688·64)	(1,171800)	(1713)	
	Sleswick	(163·57)	(323250)	(1976)	
	Holstein and Lauenburgh	(172·55)	(436520)	(2529)	
	Iceland	(1405·74)	(50000)	(35)	
	The Feroe Isles	(40)	(5200)	(130)	
4	France	10086·73	31,383000	3111	†285400
5	Germanic Confederation, excepting the Possessions of Austria, Prussia, Holstein, and Luxembourg	4431·35	13,198300	2974	121898
6	Great Britain & Ireland	5554·25	21,596000	3888	115000
	England and Wales	(2768·73)	(12,422700)	(4486)	‡
	Scotland	(1461·3)	(2,113000)	(1446)	
	Gibraltar, Malta, and Heligoland	(8·55)	(110800)	(12900)	
	Ireland	(1315·67)	(6,950000)	(5282)	
7	Helvetic Confederation	696·3	1,855000	2664	33578
8	Italy (States of the Church)	811·3	2,425400	2989	9100
9	Ionian Islands	47·12	227000	4817	4800
10	Low Countries	1196·55	5,581500	4660	§40000
11	Lucca	19·5	143400	7353	800
12	Modena and Massa	98·71	376400	3813	7870
13	Ottoman Empire	8141	10,000000	1255	218000
14	Parma and Placentia	104	437400	4205	1820
15	Portugal	1722	3,144200	1825	29645
16	Prussia	5028·6	11,369689	2261	‖120000
17	Russia	75154	47,820900	636	¶1,039120
	European Russia	(72861)	(44,118600)	(605)	
	Poland	(2293)	(3,702300)	(1615)	**
18	St. Marino	1.06	7900	6602	
19	Sardinia	1317·2	4,126920	3057	24000
	Savoy, Piedmont, Nice, and Genoa	(923·8)	(3,675380)	(3978)	
	Sardinia	(391·2)	(490090)	(1250)	
	Capri	(2·2)	(1500)	(681)	
20	Scandinavia	13784·2	3,684800	262	††38570
	Sweden	(7935·6)	(2,634600)	(332)	

* 35 ships. † 110 ships, with 4560 guns. ‡ 533 ships, with 21310 guns.
§ 76 ships. ‖ 359200 Landwehr. ¶ In 1813. ** 289 ships.
†† 30 ships, with 1242 guns.

States of Europe—continued.

	STATES.	Surface in sq. miles.	Inhabitants.	Inhab. to each sq. mile.	Military Force.
	Norway	(5798·6)	(1,050200)	(181)	
21	Sicilies (Two)	1987·4	7,121740	3583	30000
	Naples	(1491·6)	(5,386040)	(3610)	
	Sicily	(495·8)	(1,735700)	(3500)	
22	Spain	8446·9	11,400000	1349	46000
23	Tuscany	395	1,241900	1344	3000
		2. ASIA.			
1	Possessions of the Ottoman Porte	21085	11,064000	525	
2	Arabistan	46778	12,000000	213	
	Wechabites	(27700)	(5,000000)	181	200000
	Mecca, Medina	(3788)	(700000)	185	3000
	Yemen	(8230)	(4,500000)	547	
	Oman	(3060)	(1,200000)	392	
	Hesse (Corsairs)	(4000)	(600000)	150	
3	Ivan (Western Persia)	22104	11,387000	515	250000
4	Afghanistan (E. Persia)	16339	12,620000	772	200000
5	Baloochistan	9554	3,900000	408	
	Beludschistan	(7072)	(2,700000)	382	60000
	Sinde	(2482)	(1,200000)	483	36000
6	Dscehgatai (Turkestan)	32618	3,300000	101	
	Mawarelnahar (Bucharia)	(25318)	(2,640000)	105	60000
	Turkestan	(7300)	(660000)	90	
7	Indies on this side of the Ganges	53383	133,917500	2508	
	BRITISH INDIA	(45483)	(123,000000)	2704	
	Immediate Territory	[20013]	[83,000000]	4147	213400
	Protected States	[25470]	[44,000000]	1177	279500
	INDEPEND. STATES	(7676)	(10,500000)	1367	
	Country of the Mahrattas of Sinde	[1884]	[4,000000]	2102	90000
	Country of the Seiks	[3296]	[4,000000]	1149	65000
	State of Nepaul	[2496]	[2,500000]	1002	17300
	PORTUGUESE GOA	(224)	(417500)	1872	
8	The Peninsula beyond the Ganges	40790	35,700000	875	
	Country conquered by the English	(4750)	(3,500000)	736	
	Assam	(2821)	(1,000000)	355	
	Birmah	(10000)	(6,500000)	650	110000
	Malacca	(2741)	(500000)	183	
	Siam	(3778)	(1,200000)	317	60000
	Anam (Cochin-china, Tsiampa, Cambodia Lao, Lactho)	(16700)	(23,000000)	1378	150000
9	China	248359	179,000000)	724	1,000000
	Empire of China	(61136)	(147,000000)	2404	
	Depend. States. Country of the Moguls, and Mandshurs	(152950)	(5,500000)	35	
	Protected States. Tibet.	(27375)	(12,000000)	423	
		(3018)	(1,500000)	497	

Asia—continued.

	STATES.		Surface in sq. miles.	Inhabitants.	Inhab. to each sq. mile.	Military Force.
	Corea		(7442)	(15,000000)	2015	
	Archip. of Lokeio.		(436)	(500000)	1147	
10	Japan		12569	40,600000	3230	120000
11	Great Islands of Sunda	Islands.	21441	17,800000	831	
12	Small Islands of Sunda	Islands.	1685	2,100000	1247	
13	Moluccas	Islands.	1694	1,200000	708	
14	Archipel. of Suluh	Islands.	621	280000	451	
15	Philippines	Islands.	6000	4,500000	750	
16	Islands on either side the Ganges.	Islands.	2110	985000	467	
17	Russian Asia		276020	11,992000	43	

3. America.

			Surface.	Inhabitants.	Inha. to ea. sq. m.
	I. States which have declared their Independence.				
1	United States of North America		108434	10,700000	98
2	Mexico	Spanish Possessions.	76298	7,200000	94
3	United Provinces of Central America (Guatimala)	Spanish Possessions.	9602	1,100000	114
4	Haiti	Spanish Possessions.	1385	936000	676
5	Colombia	Spanish Possessions.	63558	3,500000	55
6	Peru	Spanish Possessions.	24461	1,500000	61
7	Bolivia	Spanish Possessions.	15060	1,090000	72
8	United Provs. of S. Amer. (La Plata)	Spanish Possessions.	49916	720000	14
9	Paraguay	Spanish Possessions.	6913	600000	86
10	Chili	Spanish Possessions.	8052	500000	62
11	Brazil		134833	5,810000	39
	II. European Colonies.				
1	British North America		119080	1,043000	8
	Guiana		419	147000	350
	West Indies		685	797000	1163
2	Russian North America		24000	50000	2
3	Fishing Islands		6·5	2000	333
	French Guiana		430	16700	38
	French West Indies		59·20	253800	4287
4	Dutch Guiana		490·60	70000	123
	Dutch West Indies		14·5	26000	1871
5	Spanish part of the West Indies		2498	707000	283
	Danish part of the West Indies		8·40	46300	5787
7	Swedish part of the West Indies		2·8	18000	6428
	III. States less known.				
1	Patagonians, Terra del Fuego, and the Malouin Islands		24029	150000	6
2	Galapagos, or Tortoise Island		209.50		
3	Arctic and Antarctic lands.				
	Arctic lands		96195	22000	

America—continued.

		Surface.	Inhabitants
	Antarctic lands	12000	
4	Interior of Guiana	4112·50	88600

4. States of Europe, with their Colonies.

Russia	In Europe	75154	47,820900
	In Asia	276020	11,662000
	In America	24000	50000
		375174	59,532900
Great Britain.	In Europe	5554·25	21,596000
	In Asia	50233	126,500000
	In Africa	5695	249000
	In America	120184	1,987000
	In Australasia	4516	42000
		186182·25	150,374000
France	In Europe	10086·78	31,388000
	In Asia	20	96000
	In Africa	142	100000
	In America	459·7	272500
		10744·48	31,851500
Spain	In Europe	8446·9	11,400500
	In Asia	2390	2,647000
	In Africa	163	227400
	In America	2498	707000
	In Australasia	57·3	5800
		13555·2	14,987700
Portugal	In Europe	1722	3,144200
	In Asia	312·50	576000
	In Africa	28489	1,057000
		30523·50	4,777200
Low Countries	In Europe	1196·55	5,581500
	In Asia	3769·10	6,590000
	In Africa	5	15000
	In America	505·1	90000
		5475·75	12,276500
Sweden	In Europe	13734·2	3,684800
	In America	2·8	18000
		13736·90	3,708800
Denmark	In Europe	2465·50	198627
	In Asia	4	25000
	In Africa	11	3000
	In America (Greenland 200 m.—7400 inhabit^{s}.)	208·40	53700
		2688·9	2,067970
Ottoman Porte	In Europe	8441	10,600000
	In Asia	21085	11,064000
	In Africa	12960	4,000000
		42486	25,664000

3. Total of the whole Earth.

	Surface.	Inhabitants.	Inhabitants to each squ. mile.
Europe . .	153915	209,862000	1357
Asia . .	813150	482,345500	593
Africa . .	518445	106,383100	205
America . .	782752	36,593400	46
Australasia .	159303	2,628000	16
Total . .	2,427565	837,812000*	345

X. EUROPEAN POWERS.

Austria.

Francis I., archduke of Austria, born 12 Feb., 1768; king of Hungary and Bohemia, 1 March, 1792; emperor of Austria, 11 Aug., 1804.

Charlotte-Augusta, princess of Bavaria, empress, born 8 Feb., 1792.

Bavaria.

Louis-Charles-Augustus, born 25 Aug., 1756; king of Bavaria in 1825; married 12 Oct., 1810, to Theresa-Charlotte-Louisa-Fred.-Amelia of Saxe-Hildburghausen, born 8 July, 1792.

Denmark.

Frederic VI., king of Denmark 13 March, 1808; born 28 Jan., 1768; married 31 July, 1790, to Maria-Sophia-Frederic of Hesse-Cassel, queen of Denmark; born 28 Oct., 1767.

France.

Charles X., born at Versailles, 9 Oct., 1757; king of France and Navarre, 16 Sep., 1824.

Louis-Anthony of France (dauphin), born at Versailles, 16 Aug., 1775; married 10 June, 1799, to Maria-Theresa-Charlotte of France (dauphiness), daughter of Louis XVI.; born at Versailles 19 Dec., 1778.

Great Britain.

George IV., born 12 Aug., 1762; king of the United Kingdom of Great Britain and Ireland, and of Hanover, 29 Jan., 1820.

Netherlands.

William-Frederic, born 23 Aug., 1772; king of the Netherlands 16 March, 1815; married 1 Oct., 1791, to Frederica-Wilhelmina-Louisa, of Prussia, born 18 Nov., 1774.

William-Frederick-George-Louis, prince of Orange; born 6 Dec., 1792; married 21 Feb., 1816, to the Grand Duchess Anne Polowna, sister to the emperor of Russia.

Poland.

Nicholas Paulowitz, emperor of Russia; king of Poland 1 Dec., 1825.

Portugal.

Maria da Gloria, born 4 April, 1819; daughter to Peter I., emperor of Brazil; queen of Portugal.

Isabella-Maria, her aunt, born 4 July, 1801; regent of the kingdom.

Don Miguel, her uncle, born 26 Oct., 1802.

* Assuming the population of the globe to be 1,000,000,000, the following division, with reference to their religious worship, has been calculated:

Jews	2,500,000
Christians	200,000 000
Mahometans	140,000,000
Idolaters (those who do not profess either the Jewish, Christian, or Mahometan worship) .	657,500,000

PRUSSIA.

Frederic-William III., born 3 Aug., 1770; king of Prussia 16 Nov., 1787.
Frederic-William, prince royal, born 15 Oct., 1795; married 29 Nov., 1823, to Elizabeth-Louisa, princess of Bavaria, born 12 Nov., 1801.

ROMAN STATES.

Leo XII., Annibal della Genga, born at Genga 2 Aug., 1760; elected pope at Rome 28 Sept., 1823.

RUSSIA.

Nicholas Paulowitz, emperor of all the Russias, born 2 July, 1796; married, 13 July, 1817, to the Grand Duchess Alexandrina-Wilhelmina of Prussia, born 13 July, 1796.

SARDINIA.

Charles-Felix of Savoy, born 6 April, 1765; king of Sardinia 13 March, 1821; married, 7 March, 1807, to Maria-Christina-Amelia-Theresa, daughter to the king of the Two Sicilies, born 17 Jan., 1779.

SAXONY.

Frederic-Augustus, born 23 Dec., 1750; king of Saxony in Dec. 1806; married, 29 Jan., 1769, to Maria-Amelia-Augusta, sister to the king of Bavaria, queen of Saxony, born 11 May, 1750.
Maria-Augusta-Antoinette, princess royal of Saxony, born 21 June, 1782.

SPAIN.

Ferdinand VII., born 13 Oct. 1784; king of Spain and the Indies, 19 March, 1808.
Maria-Josephina-Amelia, princess of Saxony, queen of Spain and the Indies, born 6 Dec., 1803.

SWEDEN AND NORWAY.

Charles-John, born 26 Jan., 1764; king of Sweden and Norway, 6 Feb., 1818.
Joseph-Francis-Oscar, prince royal of Sweden, born 6 July, 1799; married, 19 June, 1823, to Josephine-Maximilienne-Eugenia of Bavaria, born 14 March, 1807.

SWITZERLAND.

M. De Wiss, burgomaster of the city and republic of Zurich, president of the Federal Directory.

THE TWO SICILIES.

Francis I., born 19 Aug., 1777; king of the Two Sicilies 4 Jan., 1825; married to Maria-Isabella, sister to the king of Spain, born 5 July, 1789.

TURKEY.

Mahmoud II., born in 1784; proclaimed emperor 11 Aug. 1808.

WURTEMBURG.

William, king of Wurtemburg, 30 Oct., 1816; born 27 Sept., 1781.
Paulina-Theresa-Louisa of Wurtemburg, queen of Wurtemburg, born 11 Sept., 1800.
Charles-Frederic-Alexander, prince royal of Wurtemburg, born 6 March, 1823.

UNITED STATES OF AMERICA.

John Quincy Adams, president, elected 4 March, 1825.

XI. POPULATION OF GREAT BRITAIN.

ENGLAND.

COUNTIES OF	POPULATION.						
	1700.	1750.	1801.	Increase per cent.	1811.	Increase per cent.	1821.
Bedford....	48,500	53,900	65,500	11	72,600	18	85,400
Berks.....	74,700	92,700	112,800	8	122,300	10	134,700
Buckingham	80,500	90,700	111,000	10	121,600	13	136,800
Cambridge .	76,000	72,000	92,300	13	104,500	19	124,400
Chester	107,000	131,600	198,100	18	234,600	17	275,500
Cornwall ...	105,800	135,000	194,500	15	223,900	17	262,600
Cumberland	62,300	86,900	121,100	14	138,300	15	159,300
Derby	93,800	109,500	166,500	15	191,700	13	217,600
Devon	248,200	272,200	354,400	12	396,100	13	447,900
Dorset	90,000	96,400	119,100	8	128,900	14	147,400
Durham ...	95,500	135,000	165,700	11	183,600	15	211,900
Essex.....	159,200	167,800	234,000	11	260,900	13	295,300
Gloucester..	155,200	207,800	259,100	14	295,100	16	342,600
Hereford...	60,900	74,100	92,100	6	97,300	8	105,300
Hertford ...	70,500	86,500	100,800	14	115,400	15	132,400
Huntingdon	34,700	32,500	38,800	13	43,700	14	49,800
Kent	153,800	190,000	317,800	21	385,600	13	434,600
Lancaster ..	166,200	297,400	695,100	23	856,000	25	1,074,000
Leicester...	80,000	95,000	134,400	15	155,100	15	178,100
Lincoln....	180,000	160,200	215,500	14	245,900	17	288,800
Middlesex .	624,200	641,500	845,400	17	985,100	19	1,167,500
Monmouth .	39,700	40,600	47,100	36	64,200	13	72,300
Norfolk	210,200	215,100	282,400	7	301,800	16	351,300
Northamp. .	119,500	123,300	136,100	7	146,100	13	165,800
Northumber.	118,000	141,700	162,300	10	177,900	14	203,000
Nottingham	65,200	77,600	145,000	16	168,400	13	190,700
Oxford	79,000	92,400	113,200	9	123,200	13	139,800
Rutland ...	16,600	13,800	16,900	1	17,000	11	18,900
Salop (Shro.)	101,600	130,300	172,200	17	200,800	5	210,300
Somerset...	195,900	224,500	282,800	11	313,300	16	362,500
Hampshire .	118,700	137,500	226,900	12	253,300	14	289,000
Stafford....	117,200	160,000	247,100	23	304,000	14	347,900
Suffolk.....	152,700	156,800	217,400	12	242,900	14	276,000
Surrey	154,900	207,100	278,000	20	334,700	22	406,700
Sussex	91,400	107,400	164,600	19	196,500	21	237,700
Warwick...	96,600	140,000	215,100	10	236,400	18	280,000
Westmorland	28,600	36,300	43,000	10	47,500	10	52,400
Wilts.....	153,900	168,400	191,200	5	200,300	13	226,600
Worcester .	88,200	108,000	143,900	15	165,900	13	188,200
York, E.Riding	96,200	85,500	144,000	20	173,000	12	194,300
York, N.Riding	98,600	117,200	160,500	7	171,100	10	187,400
York, W. Rid.	236,700	361,500	582,700	16	675,100	21	815,400
England....	5,108,500	6,017,700	8,609,000	14⅔	9,870,800	16⅔	11,486,700
Wales	366,500	449,300	559,000	13	632,200	15¾	731,800
	5,475,000	6,467,000	9,168,000	14½	10,502,500	16⅓	12,218,500

COUNTIES OF	Area in Square Miles (English.)	Divisional Meetings, or Petty Sessions.	Acting County Magistrates.	Number of Parishes.	Number of Population Returns, 1821.	Number of Parish Register Returns, 1821.	Annual Proportions. One Baptism to	One Burial to	One Marriage to
Bedford	463	6	41	123	147	128	36	62	131
Berks... ...	756	9	93	151	230	160	34	58	145
Buckingham .	740	10	136	202	240	206	35	56	144
Cambridge...	858	11	83	167	176	175	32	58	126
Chester	1,052	8	69	90	504	128	36	55	136
Cornwall	1,327	16	99	203	218	205	34	71	151
Cumberland .	1,478	5	55	104	302	137	34	58	154
Derby... ...	1,026	6	54	139	337	188	35	63	153
Devon	2,579	20	167	465	487	472	32	61	127
Dorset	1,005	9	63	271	309	267	36	66	154
Durham	1,061	16	74	75	302	99	34	55	143
Essex.....	1,532	14	188	406	431	403	35	59	150
Gloucester...	1,256	18	179	339	439	341	37	64	119
Hereford	860	12	136	219	281	225	38	63	170
Hertford	528	12	95	132	150	132	34	58	179
Huntingdon..	370	3	22	103	107	98	35	63	132
Kent	1,537	14	168	411	446	402	31	50	130
Lancaster....	1,831	16	100	70	464	203	32	55	126
Leicester	804	6	52	216	348	259	36	59	133
Lincoln	2,748	16	110	629	745	623	32	62	138
Middlesex ...	282	13	200	197	239	201	38	47	106
Monmouth ..	498	10	39	125	158	127	47	70	154
Norfolk	2,092	33	154	731	751	694	33	61	136
Northampton	1,017	9	79	306	846	298	36	58	134
Northumber..	1,871	7	43	88	534	100	38	58	145
Nottingham..	837	10	58	212	269	217	33	58	133
Oxford.....	752	13	59	217	307	236	35	61	153
Rutland	149	1	7	52	56	50	36	62	148
Salop (Shrop.)	1,341	11	109	216	308	234	35	58	155
Somerset....	1,642	16	130	475	517	479	37	63	149
Hampshire ..	1,628	11	110	298	349	311	32	58	117
Stafford	1,148	8	62	145	350	180	32	56	128
Suffolk.....	1,512	16	110	510	523	502	35	67	139
Surrey	758	11	165	142	161	144	40	52	148
Sussex	1,463	16	134	310	329	302	33	72	151
Warwick ...	902	14	61	205	265	209	37	52	123
Westmorland	763	4	32	32	121	68	35	58	155
Wilts	1,379	16	91	300	388	314	37	66	145
Worcester ..	729	13	90	171	247	202	34	56	143
York, E. Riding	5,961	13	48	237	450	246	33	57	127
York, N. Riding		20	93	183	533	224	36	63	151
York, W. Riding		19	110	193	668	298	35	61	151
England	50,535	511	3,968	9,860	14,532	10,487	35	57	133
Wales	7,425	84	462	833	1,241	855	41	69	156
	57,960	595	4,430	10,693	15,773	11,342	35	58	134

WALES.

Counties of	POPULATION. 1700.	1750.	1801.	Increase per cent.	1811.	Increase per cent.	1821.
Anglesey ...	22,800	26,900	35,000	10	38,300	20	46,000
Brecon.....	27,200	29,400	32,700	19	39,000	14	44,500
Cardigan ...	25,300	32,000	44,100	18	52,000	13	59,000
Carmarthen	49,700	62,000	69,600	15	79,800	15	92,000
Carnarvon	24,800	36,200	43,000	19	51,000	16	59,100
Denbigh ...	39,700	46,900	62,400	6	66,400	18	78,000
Flint	19,500	29,700	41,000	17	48,100	14	54,900
Glamorgan	49,700	55,200	74,000	19	88,000	18	103,800
Merioneth	23,800	30,900	30,500	5	32,000	9	35,100
Montgomy.	27,400	37,000	49,300	9	53,700	14	61,100
Pembroke	41,300	44,800	58,200	8	62,700	20	75,500
Radnor ...	15,300	19,200	19,700	10	21,600	8	23,500
Totals	366,500	449,300	559,000	13	632,600	16	731,800

Counties of	Area in Square Miles (English.)	Divisional Meetings, or Petty Sessions.	Acting County Magistrates.	Number of Parishes.	Number of Population Returns, 1821.	Number of Parish Register Returns, 1821.	Annual Proportions. One Baptism to	One Burial to	One Marriage to
Anglesey..	271	4	22	67	76	72	41	83	146
Brecon....	754	6	43	66	120	72	53	67	158
Cardigan..	675	9	46	65	109	70	40	70	159
Carmarthen	974	8	35	77	124	81	45	67	142
Carnarvon	544	5	31	69	77	69	38	69	149
Denbigh..	633	8	36	59	108	59	37	62	154
Flint	244	7	24	27	68	31	34	64	190
Glamorgan	792	9	77	125	189	123	43	69	158
Merioneth	663	6	23	34	45	34	43	67	163
Montgomy.	839	9	37	51	92	53	38	65	160
Pembroke	610	7	67	141	158	139	47	83	159
Radnor...	426	6	21	52	75	52	36	64	159
Totals	7,425	84	462	833	1,241	855	41	69	156

SCOTLAND.

SHIRES or	POPULATION. 1801.	Increase per cent.	1811.	Increase per cent.	1821.	Number of Parishes.	No. of Population Returns, 1821.
Aberdeen	127,200	10	139,600	14	158,500	82	93
Argyll	74,300	19	88,400	12	99,300	50	56
Ayr	87,100	23	107,400	21	129,800	46	51
Banff	37,000	2	37,900	17	44,400	23	27
Berwick	31,600	1	31,800	7	34,100	33	34
Bute	12,200	2	12,400	13	14,100	5	6
Caithness	23,400	4	24,200	27	30,800	10	10
Clackmannan	11,200	11	12,400	9	13,500	5	6
Dumbarton	21,400	17	25,000	11	27,900	12	12
Dumfries	56,400	15	65,100	11	72,300	43	45
Edinburgh	127,100	21	153,600	27	195,300	41	46
Elgin	27,600	5	29,000	9	31,800	20	23
Fife	96,900	8	104,600	12	116,800	61	76
Forfar	102,400	8	110,800	4	115,700	54	56
Haddington	31,000	4	32,200	11	35,800	24	25
Inverness	76,800	5	80,900	14	92,000	30	37
Kincardine	27,200	4	28,400	5	29,700	19	21
Kinross	6,900	8	7,500	6	7,900	4	7
Kirkcudbright	30,200	15	34,800	14	39,700	28	28
Lanark	151,600	31	198,100	26	249,300	50	51
Linlithgow	18,400	9	20,100	15	23,100	13	15
Nairn	8,500	–	8,500	8	9,200	4	7
Orkney and Shetland	48,400	–	47,700	14	54,200	53	56
Peebles	9,000	14	10,300	–	10,200	16	16
Perth	130,600	7	139,600	2	141,800	81	88
Renfrew	80,700	19	96,100	19	114,400	17	22
Ross and Cromarty	57,200	10	62,900	12	70,200	33	33
Roxburgh	34,800	11	38,500	8	41,700	32	34
Selkirk	5,200	16	6,100	11	6,800	5	9
Stirling	52,500	15	60,200	11	66,700	24	29
Sutherland	23,900	2	24,400	–	24,300	13	15
Wigtown	23,700	17	27,800	22	33,900	17	17
Totals	1,652,400	13	1,865,900	14½	2,135,300	948	1,046

REMARK.—To the Resident Population in Scotland for the Years 1801 and 1811, One-thirtieth Part is here added for the probable proportion of Army and Navy; to the Resident Population of 1821, One-fiftieth Part is added.

POPULATION OF IRELAND, 1821.

Connaught.	Leinster.	Munster.	Ulster.	Total.
1,053,918	1,785,702	2,005,363	2,001,966	6,846,949

SUMMARY OF HOUSES, FAMILIES, AND PERSONS IN THE ISLANDS OF THE BRITISH SEAS.

	HOUSES.				OCCUPATIONS.			PERSONS.		
ISLANDS.	Inhabited.	By how many Families Occupied.	Building.	Un-Inhabited.	Families chiefly employed in Agriculture.	Families chiefly empld. in Trade, Manufactures, or Handicraft.	All other Families not comprized in the Two preceding Classes.	Males.	Females.	Total of Persons.
Guernsey, &c...	3,083	4,298	21	107	1,676	2,175	447	9,519	11,308	20,827
Jersey.....	4,053	5,813	28	41	2,310	2,756	747	13,056	15,544	28,600
Mann.....	6,627	7,858	49	279	3,520	2,864	1,474	19,158	20,923	40,081
Total.....	13,763	17,969	98	427	7,506	7,795	2,668	41,733	47,775	89,508

Remark.—The Population of the Scilly Islands was not regularly ascertained, for the purpose of insertion in this Abstract; but on the authority of the Rev. J. Wallis, jun., of Bodmin, may be safely stated at 2,614 Persons.

SUMMARY OF THE AGES OF PERSONS IN THE ISLANDS IN THE BRITISH SEAS.

MALES.

ISLANDS.	Under 5 Years.	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	100 & upwards.	Total.
Guernsey, &c...	1,384	1,304	1,095	912	1,265	1,157	880	757	468	224	71	2	...	9,519
Jersey.....	1,994	1,753	1,389	1,256	1,983	1,651	1,326	878	542	208	70	6	...	13,056
Mann.....	2,782	15	2,274	1,960	2,857	2,138	1,770	1,257	884	441	114	6	...	19,098
Total.....	6,160	5,672	4,758	4,128	6,105	4,946	3,976	2,892	1,894	873	255	14	...	41,673

FEMALES.

ISLANDS.	Under 5 Years.	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	100 & upwards.	Total.
Guernsey, &c...	1,338	1,299	1,072	1,065	2,053	1,554	1,013	900	579	313	116	6	...	11,308
Jersey.....	1,902	1,757	1,472	1,536	2,628	2,032	1,587	1,208	886	397	138	11	...	15,554
Mann.....	2,787	2,633	2,277	2,292	3,302	2,337	2,027	1,440	1,131	511	174	12	...	20,923
Total.....	6,027	5,689	4,821	4,893	7,983	5,923	4,627	3,548	2,596	1,221	428	29	...	47,785

The Total Number of Persons in these Islands was 89,508, and the Number of Persons whose Ages were returned, was 89,458; whence it appears, that the Ages of almost all the Persons therein enumerated have been obtained in compliance with the question to that effect.

COMPARATIVE STATEMENT of the AGES OF PERSONS in Great Britain, on the 28th Day of May, 1821, assuming Ten Thousand as a Total Number in each calculation.

[N.B.—The Decimal Parts having been omitted for the sake of brevity in the Number of Persons under 40 Years of Age, the Totals become liable to apparent Error, not exceeding one in the Ten Thousand.]

	ENGLAND.		WALES.		SCOTLAND.	
	Males.	Females.	Males.	Females.	Males.	Females.
Under 5 Years	1538	1444	1514	1382	1494	1294
5 to 10....	1343	1268	1407	1281	1357	1177
10 to 15	1169	1056	1210	1093	1247	1057
15 to 20	988	995	1009	1003	1032	1048
20 to 30	1470	1684	1433	1560	1490	1769
30 to 40	1155	1210	1109	1163	1095	1204
40 to 50	941.0	932.6	871.4	911.6	895.4	937.9
50 to 60	665.6	653.3	646.3	672.6	649.9	711.6
60 to 70	447.6	458.0	474.8	535.5	458.1	502.2
70 to 80	221.9	228.2	243.6	281.4	216.3	225.5
80 to 90	56.25	648.5	74.09	104.76	58.22	65.18
90 to 100.... .	4.15	5.75	7.54	10.95	6.71	7.42
100 & upwards	.12	.22	.09	.50	.43	.60

	ISLANDS OF GUERNSEY, JERSEY, &c.			THE METROPOLIS.	
	Males.	Females.		Males.	Females.
Under 5 Years...	1478	1261	...	1397	1216
5 to 10.....	1361	1190	...	1095	995
10 to 15	1141	1009	...	936	834
15 to 20	990	1024	...	865	951
20 to 30	1465	1671	...	1718	2062
30 to 40	1186	1239	...	1548	1567
40 to 50	954.1	968.3	...	1203.9	1092.4
50 to 60	696.4	742.5	...	730.7	690.9
60 to 70	454.5	543.3	...	353.6	388.8
70 to 80	209.5	255.5	...	128.5	156.4
80 to 90	61.19	89.57	...	22.47	34.64
90 to 100.....	3.36	6.07	...	1.69	3.63
100 & upwards	...	...	...	.21	.82

GENERAL SUMMARY OF THE AGES OF PERSONS IN GREAT BRITAIN.

MALES.

Age.	England.	Wales.	Scotland.	Total.
Under 5 Years	739,762	51,817	137,956	929,535
5 to 10.....	645,735	48,123	125,298	819,156
10 to 15.....	562,209	41,404	115,183	718,796
15 to 20.....	475,052	34,534	95,319	604,905
20 to 30.....	706,757	49,023	137,645	893,425
30 to 40.....	555,713	37,949	101,107	694,769
40 to 50.....	452,514	29,815	82,695	565,024
50 to 60.....	320,092	22,112	60,014	402,218
60 to 70.....	215,263	16,246	42,309	273,818
70 to 80.....	106,697	8,335	19,977	135,009
80 to 90.....	27,052	2,535	5,377	34,964
90 to 100	1,955	258	620	2,873
100 & upwards	57	3	40	100
Total...	4,808,898	342,154	923,540	6,074,592

FEMALES.

Under 5 Years	725,202	40,487	133,711	908,400
5 to 10.....	636,604	45,853	121,573	804,030
10 to 15.....	530,226	39,140	109,247	678,613
15 to 20.....	499,638	35,931	108,306	643,875
20 to 30.....	845,469	55,869	182,712	1,084,050
30 to 40.....	607,867	41,640	124,380	773,887
40 to 50.....	468,336	32,641	96,991	597,968
50 to 60..... .. .	328,077	24,083	73,518	425,678
60 to 70.....	230,009	19,175	51,868	301,052
70 to 80.....	114,572	10,076	23,298	147,946
80 to 90.....	32,564	3,751	6,734	43,049
90 to 100	2,888	392	766	4,046
100 & upwards	111	18	62	191
Total...	5,021,563	358,056	1,033,166	6,412,785

The total Number of Persons in Great Britain (not including the Army, Navy, and Seamen in Registered Vessels) was 14,072,331, and the Number of Persons whose Ages were returned, was 12,487,377; whence it appears, that the Ages of one ninth part of the Persons therein enumerated have not been obtained, in compliance with the question to that effect.

GENERAL SUMMARY of HOUSES, FAMILIES, and PERSONS in GREAT BRITAIN.

	England.	Wales.	Scotland.	Army, Navy, Marines, and Seamen in Registered Vessels.	Great Britain.
Houses, Inhabited . .	1,951,973	136,183	341,474	. . .	2,429,630
„ By how many Families occupied .	2,346,717	146,706	447,960	. . .	2,941,383
„ Building . .	18,289	985	2,405	. . .	21,679
„ Uninhabited .	66,055	3,652	12,657	. . .	82,364
Families chiefly employed in Agriculture .	773,732	74,225	130,699	. . .	978,656
„ in Trade, Manufacture, or Handicraft .	1,118,295	41,680	190,264	. . .	1,350,239
„ all other Families not comprised in the Two preceding Classes	454,690	30,801	126,997	. . .	612,488
Persons, Males . . .	5,483,679	350,487	983,552	319,300	7,137,018
„ Females . .	5,777,758	366,951	1,109,904	. . .	7,254,613
Total of Persons .	11,261,437	717,438	2,093,456	319,300	14,391,631

SUMMARY and COMPARATIVE STATEMENT of the ENUMERATIONS of 1801, 1811, and 1821.

	Population 1801.	Rate of Increase, p. Cent.	Rate of Diminution, p. Cent.	Population 1811.	Rate of Increase, p. Cent.	Rate of Diminution, p. Cent.	Population 1821.
England . .	8,331,434	14½	—	9,538,827	18	—	11,261,437
Wales . . .	541,546	13	—	611,788	17⅓	—	717,438
Scotland . .	1,599,068	13	—	1,805,688	15⅔	—	2,093,456
	10,472,048	14	—	11,956,303	17⅔	—	14,072,331
Army, Navy, &c.	470,598	36	—	640,500	—	50	319,300
Totals .	10,942,646	15	—	12,596,803	14¼	—	14,391,631

TABLE of POPULATION throughout the last CENTURY.

England and Wales.

In the Year	Population.	In the Year	Population.
1700.....	5,475,000	1760.....	6,736,000
1710.....	5,240,000	1770.....	7,428,000
1720.....	5,565,000	1780.....	7,953,000
1730.....	5,796,000	1790.....	8,675,000
1740.....	6,064,000	1801.....	9,168,000
1750.....	6,467,000		

THE METROPOLIS.	POPULATION.				
	1700.	1750.	1801.	1811.	1821.
1. City of London *within* the Walls	139,300	87,000	78,000	57,700	58,400
2. City of London *without* the Walls	69,000	57,300	56,300	68,000	72,000
3. City and Liberties of Westminster . . .	130,000	152,000	165,000	168,600	189,400
4. Out-Parishes within the Bills of Mortality . .	326,900	357,600	477,700	593,700	730,700
5. Parishes *not* within the Bills of Mortality . .	9,150	22,350	123,000	162,000	224,300
6. Total of the Metropolis .	674,350	676,250	900,000	1,050,000	1,274,800

Number of Baptisms, Burials, and Marriages.

Year.	BAPTISMS.			Year.	BURIALS.			Marriages.
	Males.	Females.	Total.		Males.	Females.	Total.	
1801	120,621	116,508	237,029	1801	101,352	103,082	204,434	67,228
1802	139,889	133,948	273,837	1802	99,504	100,385	199,889	90,396
1803	150,220	143,888	294,108	1803	102,459	101,269	203,728	94,379
1804	150,583	144,009	294,592	1804	91,538	89,639	181,177	85,738
1805	149,333	142,868	292,201	1805	91,086	90,154	181,240	79,586
1806	147,376	144,553	291,929	1806	92,289	91,163	183,452	80,754
1807	153,787	146,507	300,294	1807	97,996	97,855	195,851	83,928
1808	151,565	144,509	296,074	1808	102,614	98,149	200,763	82,249
1809	152,812	147,177	299,989	1809	97,894	93,577	191,471	83,360
1810	152,591	146,262	298,853	1810	104,907	103,277	208,184	84,47g
1811	155,671	149,186	304,857	1811	94,971	93,572	188,543	86,389
1812	153,949	148,005	301,954	1812	95,957	94,445	190,402	82,066
1813	160,685	153,747	314,432	1813	93,726	92,751	186,477	83,860
1814	163,282	155,524	318,806	1814	103,525	102,878	206,403	92,840
1815	176,233	168,698	344,931	1815	99,442	97,966	197,408	99,944
1816	168,801	161,398	330,199	1816	103,954	102,005	205,959	91,946
1817	169,337	162,246	331,583	1817	101,040	98,229	199,269	88,234
1818	169,181	162,203	331,384	1818	107,724	105,900	213,624	92,779
1819	171,107	162,154	333,261	1819	106,749	106,815	213,564	95,571
1820	176,311	167,349	343,660	1820	104,329	104,020	208,349	96,833

THE METROPOLIS.

WITHIN THE LONDON BILLS OF MORTALITY.		HOUSES. Inhabited.	By how many Families occupied.	Building.	Uninhabited.
City of London, within the Walls		7,938	11,571	32	560
Without the Walls, exclu. of Southwark.		9,232	16,497	73	455
City of Westminster and Liberties.		18,502	41,554	391	382
OUT-PARISHES in MIDDLESEX and SURREY.	Andrew, St., and St. George	2,829	6,285	29	130
	Artillery Ground, Old	187	385	...	19
	Bermondsey, St. Mary Magdalen	4,278	6,715	51	362
	Bethnal Green, St. Matthew	8,095	10,701	200	292
	Botolph, St., without Aldgate	941	1,575	3	79
	Charter-House	11	11	...	...
	Christ Church, Spitalfields	2,300	4,752	34	191
	Christ Church in Surrey	1,811	3,193	13	33
	Clement, St. Danes (part of)	487	836	1	7
	Clerkenwell, St. James & St. John	4,995	9,726	185	202
	Duchy of Lancaster (part of)	67	63	...	1
	Ely Place	45	48	...	...
	Giles, St., & St. George's, Blooms.	4,456	12,255	27	431
	George, St., in-the-East	5,345	7,612	188	365
	George, St., Southwark	5,149	8,901	123	271
	Glass-House Yard	168	335	1	1
	Hackney, St. John	3,715	4,653	116	206
	Horsleydown, St. John	1,527	2,209	18	88
	Islington, St. Mary	3,495	4,244	124	172
	Katherine, St., near the Tower	427	685	...	38
	Lambeth, St. Mary	9,294	13,047	248	377
	Limehouse, St. Ann	1,683	2,317	83	119
	Luke, St., Middlesex	5,517	10,610	83	280
	Newington Butts, St. Mary	5,819	7,935	160	405
	Olave, St., Southwark	1,221	2,105	4	59
	Rolls Liberty	313	602	6	4
	Rotherhithe, St. Mary	2,098	2,934	17	114
	Saffron-Hill and Hatton-Garden	911	2,244	...	77
	Saviour's, St., Southwark	2,639	4,445	50	47
	Savoy, St. John Baptist	31	49	7	...
	Sepulchre, St. (part of)	555	1,156	...	19
	Shadwell, St. Paul	1,682	2,399	7	143
	Shoreditch, St. Leonard	8,269	12,828	93	494
	Stepney, St. Dunstan	8,386	11,479	272	609
	Thomas, St., Southwark	130	354	...	4
	Tower Liberty	84	117	...	9
	Tower, Old Precinct	31	41	...	6
	Wapping, St. John	483	822	1	150
	Whitechapel, or St. Mary Matfelon	4,225	7,418	29	283
Parishes not within the London Bills of Mortality.	Chelsea, St. Luke	3,602	5,829	146	138
	Kensington	1,984	3,218	14	68
	Mary-le-bone, St.	9,761	22,516	261	143
	Paddington	1,139	1,448	28	13
	Pancras, St.	8,824	16,382	181	400
	Totals	164,681	287,101	3,299	8,246

Families chiefly employed in Agriculture	Families chiefly employed in Trade, Manufactures, or Handicraft	All other Families not comprised in the two preceding Classes.	PERSONS. Males.	Females.	Total.	Ages of Persons. Males.	Females.
2	9,609	1,960	27,506	28,668	56,174	Under 5 61,284	60,993
55	11,592	4,850	34,441	34,819	69,260	5 to 10 48,030	49,907
308	25,126	16,120	85,082	97,003	182,085	10 to 15 41,072	41,835
...	3,824	2,461	12,316	14,176	26,492	15 to 20 37,937	48,136
...	303	82	685	802	1,487	20 to 30 75,385	103,433
123	5,354	1,238	12,125	13,110	25,235	30 to 40 67,938	78,604
81	7,779	2,841	22,253	23,423	45,676	40 to 50 52,824	54,806
16	1,130	429	3,032	3,397	6,429	50 to 60 32,058	34,663
...	. . .	11	102	42	144	60 to 70 15,513	19,505
13	4,506	233	9,025	9,625	18,650	70 to 08 5,639	7,849
21	2,303	869	6,280	7,059	13,339	80 to 90 986	1,738
...	507	329	1,905	2,105	4,010	90 to 100 74	197
72	6,953	2,701	18,533	20,572	39,105	100 & upwards. 9	16
...	34	29	227	262	489	438,749	501,682
...	72	36	97	171	268		
...	8,366	3,889	24,289	27,504	51,793		
...	5,049	2,563	14,740	17,788	32,528		
65	7,009	1,827	17,516	18,852	36,368		
...	239	96	641	717	1,358		
187	1,883	2,583	9,766	12,728	22,494		
19	1,465	725	4,379	4,784	9,163		
19	1,543	2,682	9,550	12,867	22,417		
...	527	158	1,300	1,324	2,624		
447	6,969	5,631	25,792	31,846	57,638		
4	1,249	1,064	4,589	5,216	9,805		
47	8,586	1,977	19,987	20,889	40,876		
148	4,373	3,414	14,917	18,130	33,047		
1	1,223	881	4,154	4,266	8,420		
..	504	98	1,415	1,322	2,737		
134	1,915	885	5,757	6,766	12,523		
..	1,826	418	4,454	4,548	9,002		
166	2,751	1,528	8,423	8,385	16,808		
...	34	15	101	121	222		
...	940	216	2,381	2,359	4,740		
...	2,399	. . .	4,482	5,075	9,557		
42	8,284	4,502	24,843	28,123	52,966		
42	6,473	4,964	22,706	26,457	49,163		
..	324	30	938	869	1,807		
..	9	108	176	287	463		
..	29	12	99	106	205		
...	563	259	1,432	1,646	3,078		
..	3,955	3,463	14,394	15,013	29,407		
275	2,979	2,575	11,623	15,237	26,860		
332	1,621	1,265	5,749	8,679	14,428		
20	12,608	9,888	41,386	54,654	96,040		
4	760	684	2,852	3,624	6,476		
377	8,752	7,253	31,796	40,042	71,838		
3,020	184,239	99,842	570,236	655,458	1225,694		

The total Number of Persons in the Metropolis was 1,225,694, and the Number of Persons whose Ages were returned was 940,431; whence it appears, that the Ages of one-fourth part of the Persons therein enumerated have not been obtained, in compliance with the question to that effect.

XII. MISCELLANEOUS STATISTICS.

SUPERFICIES OF GREAT BRITAIN AND IRELAND.—The British Isles contain 71,281907 Acres, which are thus divided:

	Arable.	Meadow.	Uncultivated.	Total.
England...	10,900,000	14,200,000	7,932,400	33,032,400
Wales.....	900,000	2,600,000	1,252,000	4,752,000
Scotland...	2,500,000	2,550,000	17,204,507	22,254,507
Ireland ...	.....	.....	.....	11,243,000
			Total Acres.....	71,281,907

CANALS.—In 1823, the total length of Canals in Great Britain, excluding those under Five Miles, was 2589 Miles.

TURNPIKE ROADS.—In 1823, the total extent of Turnpike Roads in Great Britain, was

24,531 Miles. Annual Income...£1,214,716. Debt...£5,200,000

COALS.—The Newcastle Coal formation contains 5,575,680,000 cubic Yards, extending in length 23 Miles. 28,000,000 Tons of Coal are Annually raised, being 31 Millions of cubic Yards.

ENGLISH DIOCESES.

	Dioceses.	Extent of Diocese.
In the Province of *Canterbury.*	Canterbury.....	Part of Kent.
	London.....	Essex, Middlesex, part of Herts.
	Winchester.....	Surrey, Hants, Isle of Wight, Jersey, Guernsey, Alderney.
	Litch. & Coven.	Staffordshire, Derbyshire, part of Warwickshire, Shropsh.
	Lincoln.....	Lincoln. Leices. Hunting. Bedford. Bucks. part of Herts.
	Ely.....	Cambridgeshire.
	Salisbury	Wiltshire, Berkshire.
	Exeter	Cornwall, Devonshire.
	Bath and Wells	Somersetshire.
	Chichester.....	Sussex.
	Norwich.....	Norfolk, Suffolk, part of Cambridge.
	Worcester.....	Worcestershire, part of Warwick.
	Hereford.....	Herefordshire, part of Shropshire.
	Rochester.....	Part of Kent.
	Oxford.....	Oxfordshire.
	Peterborough	Northamptonshire, Rutlandshire.
	Gloucester.....	Gloucestershire.
	Bristol	City of Bristol, part of Gloucestershire, and Dorsetshire.
	Llandaff	Glamorganshire, Monmouthshire, Brecknocksh. Radnorsh.
	St. David's....	Pembrokeshire, Cardiganshire, Carmarthenshire.
	St. Asaph.....	Flint, Denbigh, Montgomeryshire, part of Shropshire.
	Bangor.....	Anglesey, Carnarv. Merioneth. pt. of Denbigh, Montgom.
Province of *York.*	York.....	Most of Yorkshire and Nottinghamshire.
	Durham.....	Durham and Northumberland.
	Carlisle.....	Part of Cumberland and Westmorland.
	Chester.....	Cheshire, Lancash. Richmond, pt. of Cumbr. & Westmor.
	Sodor&Man	Isle of Man.

XIII. POPULATION OF FRANCE.

Summary of Births, Marriages, and Deaths in France, from 1817 to 1825.

YEAR.	BIRTHS. Legitimate. Male.	Legitimate. Female.	Illegitimate. Male.	Illegitimate. Female.	Total of Births.	MARRIAGES.	DEATHS. Male.	DEATHS. Female.	Total of Deaths.	Increase of Population.
Total for 1817	456570	425002	31887	30666	944125	205244	382813	365410	748223	195902
„ 1818	440972	414332	30216	28335	913855	212979	376412	375495	751907	161948
„ 1819	475651	446606	33660	32001	987918	215088	398260	389795	788055	199863
„ 1820	460463	432121	33915	32434	958933	208893	389822	380884	770706	188227
„ 1821	463069	432803	34552	32934	963358	221868	377062	374152	751214	212144
„ 1822	465274	437774	35820	33928	972796	247495	391443	382719	774162	198634
„ 1823	460807	433552	35710	33952	964021	262020	376101	366634	742735	221286
„ 1824	471490	441488	36280	34894	984152	231680	385785	377821	763606	220546
„ 1825	468151	436443	35381	34011	973986	243674	400444	397568	798012	175974

Progress of the Population of the City of Paris, during the Year 1826.

BIRTHS

BIRTHS in private houses.	In wedlock	Boys 9639		
		Girls 9428	19067	
	Out of wedlock	Boys 2717		
		Girls 2553	5270	
„ in the hospitals.	In wedlock	Boys 191		
		Girls 210	401	
	Out of wedlock	Boys 2640		
		Girls 2592	5232	
		Total	29970	
	Births of Boys	15187		
	„ Girls	14783		
		29970		
Natural Children	Acknowledged, comprised in the above Births	Male 1262		
		Female 1156	2418	
	Abandoned	Male 4095		
		Female 3989	8084	
		Total	10502	

MARRIAGES.

Bachelors and Maids	6456	
Bachelors and Widows	368	
Widowers and Maids	708	7754
Widowers and Widows	222	

Still-born Children	Male	810	
	Female	737	1547

DEATHS.

In private houses	Male	7392	
	Female	8255	15647
At the civil hospitals	Male	4463	
	Female	4438	8901
Military	Male	411	
	Female		411
In prisons	Male	18	
	Female	32	50
Deposited in la Morgue	Male	278	
	Female	54	332
		Total	25341

Died of Small Pox in 1826 . . . 190

XIV. TERRESTRIAL LATITUDES AND LONGITUDES.

THE following preliminary definitions will be found useful by those who have not studied the principles of mathematical geography.

1. The earth is very nearly a globe, having its mean *diameter*, or measure through the centre, 7912 miles, very nearly; and its mean *circumference*, or the measure round it, 24,979 miles, or in round numbers 25,000 miles. A degree is the 360th part of a circumference; thus, a degree of the earth's circumference is 69½ miles, very nearly. A degree is understood to be divided into 60 minutes, which, in the earth's circumference, are called *nautical* or *geographical* miles; and the minute is divided into 60 seconds. For common purposes, a degree may be called 70 English miles; and then a minute will be 2053⅓ yards, and a second 34⅔ yards. Half a circumference, or a *semicircle*, is of course 180 degrees, and a quarter, or quadrant, 90. All circles, whether large or small, are divided into the same number of degrees, minutes, and seconds.

2. The earth turns round the same diameter, at a uniform rate of motion, every 23 hours, 56 minutes, nearly. The extremities of this diameter (which, though a mere imaginary line, is called the axis of rotation) are called the *poles*, from a Greek word signifying to turn. The daily rotation of the earth from west to east causes an apparent motion of the heavenly bodies from east to west, and they all appear to revolve round the *poles of the heavens*, that is, the points to which the axis of the earth is directed.

3. At whatever part of the sea or the land one may be, a heavy weight, so suspended by a string as that it touches nothing, stretches the string so that the weight end points very nearly to the centre of the earth, and the other, or upper end, to the middle of the sky over us.

4. The *horizon* is the circle which, if we be upon perfectly level ground, divides the upper half (or hemisphere) of the sky, which we see, from the under half, which we do not see. The *Zenith*, to which the upper end of the string points, is in the centre of the first; and the *Nadir*, to which the weight end of the string points, is in the centre of the second.

5. From the zenith to the horizon is 90 degrees; the measure across the zenith from horizon to horizon is 180 degrees; and the measure from any point in the horizon to the opposite point is the same.

6. If one stand upon one pole of the earth, *that* pole of the heavens will be in the zenith, and *the other one* in the nadir. If we stand at any number of degrees distance from a pole of the earth, that pole of the heavens will be as many degrees from the zenith.

If one stand midway between the poles of the earth, the north pole of the heavens will be in the north point of the horizon, and the south pole of the heavens in the south point.—A circumference of the earth passing through all the points that are equally distant

from both poles is called the *equator* of the earth; and the circumference of the heavens directly over it is called the celestial equator. The first of these divides the earth into two (equal) *hemispheres*, a *north* and a *south*; and the last divides the heavens in the same way. The corresponding pole is in the centre of the hemisphere, whether of the earth or the heavens.

7. If one stands at any number of degrees distance from the equator, the nearest pole will be that number of degrees above the horizon, and the other pole the same number below. Hence every change of place, northward or southward, will cause an alteration in the *elevation* of the pole with regard to the horizon; but no alteration will be made by a change eastward or westward, if the same distance from the pole (or equator) be preserved.

8. A line drawn directly north and south is called a *meridian* line, because it points to the place of the sun at 12 at noon, or mid-day. If such a line were supposed to be continued northward and southward to the poles, it would be a half circumference of the earth; the equator would divide it in the middle, and all the points through which it passed would be directly north and south of each other. If a line were supposed to be drawn, in the heavens, directly over all the points of a meridian, that would be the corresponding *celestial meridian*, and would pass through the poles of the heavens. If the meridian on the earth and the celestial meridian were both continued completely round, they would be circles; and the former would divide the earth, and the latter the heavens, into an eastern and a western hemisphere.

9. As the meridians of all places pass through the poles, and as the poles are points, all meridians must meet one another in these. Lines and circles that meet one another are said to form an *angle*. That angle is the measure of the *inclination* of the one to the other. Thus the angle which any two meridians make with each other is measured by the part of the equator that lies between them, and counted in degrees, minutes, &c.

10. As the whole heavens appear to revolve round the poles in 24 hours nearly, a twenty-fourth part must pass any point, as, for instance, the south point, in one hour. But the twenty-fourth part of 360 is 15; therefore, 15 degrees of the heavens must apparently pass the south, or meridian, every hour nearly.

When we cannot see one place from another, or measure the distance between them by a rod or line, we can determine them by knowing the positions of both on the earth's surface. As, for instance, a man living in London wishes to know how far it is to Jerusalem or Mexico, and in what directions those places lie from London; or a sailor in the middle of the Atlantic wishes to know how he can find his way to the Land's End in Cornwall, or to Kingston in the island of Jamaica. In either case, he can neither see the direction nor measure the distance directly; and thus, if he had not some means of ascertaining them, travelling and sailing would be at an end.

When, as in these cases, we cannot point out the direction, or measure the distance directly, we find how far the one place is

north or south of the other, and also how far it is east or west; and when we have once found these, we can calculate the others. The distance north or south is found, by first finding how far each place is north or south of the equator, and then taking the sum if they are on opposite sides, or the difference if they are on the same side; and the distance east or west is found, by first finding the angle that is made at the pole by the meridians of the two places, or, which is the same thing, by finding what portion of the equator lies between their meridians.

The LATITUDE of any place is its distance from the equator; and is *north* when it is nearest the north pole, and *south* when it is nearest the south pole. No place can have more than 90 degrees of latitude; neither can two places lie more than 180 degrees asunder.

The latitude is easily found, by observing the height of the sun, the moon, or any other celestial body, when it is on the meridian.

The height of the pole above the horizon is equal to the Latitude of the place. This may be ascertained by observing the greatest and least elevations above the horizon of the pole-star, or any other star which never sets. Half the sum of these elevations is equal to the height of the pole, or the Latitude.

When we take our measurement of the altitude of any celestial body, (which is effected by means of an instrument which measures angles) we must previously know how far that celestial body is from the celestial equator. The distance of any celestial body from the celestial equator, is called its *declination*, and is *north* or *south* according to the situation of the body. If the declination be of the same kind with the latitude, we must subtract it from the height of the body when on the meridian; and if it be of the opposite kind, we must add it; the difference between the result and 90 degrees is the Latitude. In every method, when our observation requires to be accurate, we must make other corrections: as, we must allow for the *dip* or height we are above the mean surface of the earth; for the *half diameter* of the body, if we take the outside or *limb* of it instead of the centre; for the *refraction*, or bending of the light on passing through the atmosphere; and for the *parallax* or difference of position in the body as seen from the surface of the earth, and from the centre. All these matters are, however, inserted and explained in the tables that are used by seamen and others who have occasion, accurately, to find the latitude.

For common purposes, all degrees of latitude may be considered as of the same length; but as, in reality, the earth is a little flattened toward the poles, it takes a passage over rather a larger space there, to make the same angular distance.

The LONGITUDE of a place is much more difficult to find than the latitude, because here we have no point fixed by nature from which to begin. We are, therefore, obliged to take the meridian of some particular place as a first meridian; find the longitudes of other places by observation, and count them from that. It is

indifferent what place we take, and therefore British geographers and sailors take the meridian of the Royal Observatory at Greenwich. Most other nations reckon from their chief city; but it would be much more convenient if the first meridian were the same with all; at least it would save the trouble of adding or subtracting the difference. Thus, in reducing French longitudes, which are reckoned from Paris, to English, 2° 20′ 24″ must be added, if they are east; and the same must be subtracted if they are west.

The general method of finding the *difference of longitude* is, to find the *difference of time* between the two places. The sun, by the motion of which time is usually measured, apparently comes from the east. Consequently, it must be noon, or any other hour at the easternmost place, before it is at the westernmost. The difference, as has been stated, is 15 degrees for an hour, four minutes of time for a degree, fifteen minutes of longitude to a minute of time, or, under the equator, about 510 yards for a second of time. These numbers are near enough for purposes of explanation, but for all purposes of computation they require to correspond with the accurate period of the revolution of the earth upon its axis.

When the celestial bodies are visible, it is always easy to find the exact time at the place of observation, whether that place be on land or at sea; and, therefore, if it were possible to convey the exact time at the first meridian over the world, the longitude would be easily found.

A watch, or chronometer, as it is called, that goes at a perfectly uniform rate, may so far answer the purpose, but there is no absolute check upon it. If there be two or three, the average of them is a little more to be depended on, but even that gives no absolute certainty.

There are several other methods:—the eclipses of the sun, the eclipses of the satellites of Jupiter, the distance of the sun and moon, and the distance of the moon from certain known stars. These can all be computed beforehand; and they are inserted in the nautical almanacs for the benefit of seamen. But eclipses of the sun happen very seldom; the eclipses of the satellites of Jupiter cannot be observed at sea, in consequence of the motion of the ship; the method mostly resorted to is derived from observing the distance of the moon from a star. Those distances are marked in the nautical almanac, with the times at Greenwich when they take place, and by making the proper corrections for *refraction*, *parallax*, and the other circumstances mentioned, the longitude may be found by the difference between the time at which they are observed, and that stated at the first meridian. Thus, if any position of the moon and a star be stated in the nautical almanac to take place at Greenwich at 12 at night, and if, after all corrections, the same be found to take place at 4 in the morning, the place of observation will be in 60 degrees east longitude nearly. Such are the principles, but the details are too minute for being noticed here.

The degrees of longitude are not all of the same length. The meridians meet at the pole, and are at the greatest distance asunder

at the equator; therefore, as the latitude increases, the longitude becomes less and less, and, consequently, an error in the longitude becomes a smaller number of miles. At latitude 60, the degree of longitude is half of what it is at the equator,—where, upon the supposition that the earth is a perfect globe, it is equal to a degree of latitude. The decrease is most rapid toward the poles, and at the pole itself the degree of longitude has no length whatever.

The principles of mathematical geography are more fully detailed in the treatise on that subject, published by the Society for the Diffusion of Useful Knowledge; and to that treatise we refer our readers for the explanation of many points that could here only be slightly noticed.

The following is a Table of the Longitudes and Latitudes of remarkable places:—

TABLE of the LONGITUDES and LATITUDES of some of the PRINCIPAL TOWNS on the GLOBE, reckoned from the Meridian of Greenwich.

[In compiling this Table, the numbers have been taken to the nearest minute, whether over or under.]

Towns.	Countries.	Longitude.			Latitude.		
Aberdeen	Scotland	1°	55′	W	57°	6′	N
Agen	France	0	27	E	44	12	N
Ajaccio	Corsica	8	44	E	41	55	N
Aleppo	Turkey	37	10	E	36	11	N
Alexandria	Egypt	30	13	E	31	11	N
Algiers	Africa	3	5	E	36	49	N
Amiens	France	2	18	E	49	53	N
Amsterdam	Holland	4	53	E	52	22	N
Angers	France	0	33	W	47	28	N
Angouleme	Ditto	0	9	E	45	39	N
Antongil	Madagascar	50	24	E	15	27	N
Antwerp	Netherlands	4	24	E	51	13	N
Arras	France	2	47	E	50	17	N
Aurillac	Ditto	2	27	E	44	56	N
Archangel	Russia	40	44	E	64	32	N
Astracan	Ditto	48	13	E	46	21	N
Athens	Greece	23	45	E	37	58	N
Auch	France	0	25	E	43	39	N
Auxerre	Ditto	3	35	E	47	48	N
Avignon	Ditto	4	49	E	43	57	N
Bagdad	Asia	44	25	E	33	20	N
Barcelona	Spain	2	10	E	41	22	N
Batavia	Java	106	56	E	6	12	S
Beauvais	France	2	5	E	49	26	N
Berlin	Prussia	13	22	E	52	32	N
Blois	France	1	25	E	47	35	N
Bombay	India	73	0	E	18	57	N
Bourdeaux	France	0	34	W	44	50	N
Boston	America	70	39	W	42	22	N
Bourg	France	5	14	E	46	12	N
Bourges	Ditto	2	24	E	47	5	N
Bremen	Germany	8	48	E	53	5	N

Towns.	Countries.	Longitude.			Latitude.		
Breslaw	Silesia	17	2	E	51	6	N
Brest	France	4	29	W	48	23	N
Bristol	England	2	30	W	51	28	N
Brussels	Netherlands	4	22	E	50	51	N
Buenos Ayres	America	53	24	W	34	37	S
Bucharest	Wallachia	25	51	E	44	29	N
Cadiz	Spain	6	17	W	36	32	N
Caen	France	0	22	W	49	11	N
Cairo	Egypt	31	18	E	30	3	N
Calcutta	India	88	30	E	22	35	N
Cambridge	England	0	5	E	52	12	N
Canton	China	113	13	E	23	8	N
Cape Françoise	St. Domingo	72	18	W	19	46	N
Cape of Good Hope	Africa	18	24	E	33	55	S
Carcassone	France	2	21	E	43	13	N
Carthagena	America	75	30	W	10	25	N
Cassel	Germany	9	35	E	51	19	N
Cayenne	America	52	15	W	4	56	N
Chalôns sur Marne	France	4	22	E	48	57	N
Chandernagur	Indies	88	30	E	22	51	N
Chartres	France	1	29	E	48	27	N
Chaumont	Ditto	5	10	E	48	6	N
Cherbourg	Ditto	1	27	W	49	38	N
Clermont Ferrant	Ditto	3	5	E	45	47	N
Constantinople	Turkey	28	55	E	41	1	N
Copenhagen	Denmark	12	34	E	55	41	N
Cracow	Poland	19	57	E	50	3	N
Dantzic	Prussia	18	38	E	54	21	N
Digne	France	6	14	E	44	5	N
Dover	England	1	19	E	51	8	N
Draguignan	France	6	29	E	43	32	N
Dresden	Saxony	13	43	E	51	3	N
Dublin	Ireland	6	35	W	53	12	N
Dunkirk	France	2	22	E	51	2	N
Edinburgh	Scotland	3	13	W	55	57	N
Evreux	France	1	9	E	49	0	N
Florence	Italy	11	16	E	43	47	N
Foix	France	1	37	E	42	48	N
Frankfort on the Maine	Germany	8	36	E	50	7	N
Gap	France	6	5	E	44	34	N
Geneva	Switzerland	6	5	E	46	12	N
Genoa	Italy	8	58	E	44	25	N
Gibraltar	Spain	5	19	W	36	6	N
Goa	India	73	45	E	15	31	N
Goree, Island of	Senegal	17	15	W	14	40	N
Gotha	Saxony	10	44	E	50	56	N
Greenwich	England	0	0	E	51	29	N
Grenoble	France	5	44	E	45	11	N
Hamburg	Germany	9	59	E	53	33	N
Havannah, I. of Cuba	America	82	13	W	23	9	N
Horn, Cape	Ditto	67	21	W	55	58	S
Ispahan	Persia	51	50	E	32	25	N
Jackson, Port	New Holland	153	12	E	34	0	S
Jerusalem	Asiatic Turkey	33	0	E	31	48	N
Kasan	Russia	49	20	E	55	48	N

Towns.	Countries.	Longitude.			Latitude.		
Königsberg	Prussia	20°	29′	E	54°	42′	N
Laon	France	3	38	E	49	34	N
Laval	Ditto	0	46	W	48	4	N
Lisle	Ditto	3	5	E	50	38	N
Lima	Peru	77	7	W	12	3	S
Limoges	France	1	16	E	45	50	N
Lisbon	Portugal	9	9	W	38	42	N
London, St. Paul's	England (nearly)	0	5	W	51	31	N
Lyons	France	4	50	E	45	46	N
Macao	China	113	35	E	22	13	N
Mâcon	France	4	50	E	46	18	N
Madras	India	80	17	E	13	4	N
Madrid	Spain	3	42	W	40	25	N
Malacca	India	102	5	E	2	10	N
Manilla	Philippine Islands	120	58	E	14	36	N
Malaga	Spain	4	2	W	36	43	N
Marseilles	France	5	22	E	43	18	N
Mecca	Arabia	39	15	E	21	28	N
Melun	France	2	40	E	48	32	N
Metz	Ditto	6	11	E	49	7	N
Mexico	America	99	5	W	19	26	N
Mézières	France	4	44	E	49	46	N
Milan	Italy	9	12	E	45	28	N
Montauban	France	1	21	E	44	2	N
Montpellier	Ditto	3	58	E	44	1	N
Montreal	Canada	73	11	W	45	52	N
Monte Video	America	58	24	W	34	35	S
Moscow	Russia	37	33	E	55	46	N
Moulins	France	3	20	E	46	34	N
Munich	Bavaria	11	35	E	48	8	N
Nancy	France	6	11	E	48	42	N
Nangasaki	Japan	129	52	E	32	32	N
Nankin	China	118	47	E	32	4	N
Nantes	France	1	32	W	47	13	N
Naples	Italy	14	6	E	40	50	N
Nevers	France	3	10	E	46	59	N
Newcastle	England	1	28	W	55	3	N
New Orleans	America	89	51	W	29	58	N
Nismes	France	4	26	E	43	51	N
Odessa	Russia	30	45	E	46	30	N
Orleans	France	1	55	E	47	54	N
Oxford	England	1	15	W	51	45	N
Otaheite	Pacific Ocean	149	30	W	17	29	S
Owyhee	Sandwich Islands	156	0	E	20	17	N
Palermo	Sicily	13	22	E	38	7	N
Palma	Island of Majorca	2	39	E	39	34	N
Paris	France	2	20	E	48	50	N
Pekin	China	116	28	E	39	54	N
Perigueux	France	0	44	E	45	11	N
Perpignan	Ditto	2	54	E	42	42	N
Petersburgh	Russia	30	19	E	59	56	N
Philadelphia	America	75	11	W	39	57	N
Poictiers	France	0	21	E	46	35	N
Pondicherry	India	79	52	E	11	56	N
Plymouth	England	4	15	W	50	24	N

Towns.	Countries.	Longitude.			Latitude.		
Portsmouth	England	1°	1′	W	50°	47′	N
Portobello	America	79	15	W	9	33	N
Porto Ferrajo	Island of Elba	10	20	E	42	59	N
Porto Rico	Antilles, America	66	13	W	18	29	N
Prague	Bohemia	14	25	E	50	5	N
Quebec	Canada	71	10	W	46	47	N
Quimper	France	4	4	W	47	58	N
Quito	Peru	78	55	W	0	13	S
Rennes	France	1	41	W	48	6	N
Riga	Russia	24	8	E	56	57	N
Rio de Janeiro	America	43	18	W	22	54	S
Rome	Italy	12	30	E	41	54	N
Rouen	France	1	6	E	49	26	N
Rochelle	Ditto	1	10	W	51	23	N
St. Blas	Mexico	105	16	W	21	33	N
St. Helena	Atlantic Ocean	5	49	W	15	55	S
St. Croix	Antilles	64	49	W	17	44	N
Siam	Asia	100	50	E	14	21	N
Smolensko	Russia	32	0	E	54	51	N
Smyrna	Asia	27	7	E	38	28	N
Stockholm	Sweden	18	4	E	59	20	N
Stralsund	Germany	13	32	E	54	19	N
Strasburg	France	7	45	E	48	35	N
Stutgard	Germany	9	11	E	48	46	N
Syene	Egypt	32	25	E	24	5	N
Teneriffe, Peak of	Canary Islands	16	40	W	28	17	N
Thebes	Egypt	32	40	E	25	43	N
Tobolsk	Siberia	68	6	E	58	12	N
Torneo	Sweden	24	12	E	65	51	N
Toulon	France	5	56	E	43	7	N
Toulouse	Ditto	1	26	E	43	35	N
Tours	Ditto	0	42	E	47	24	N
Trebisond	Asiatic Turkey	39	26	E	41	12	N
Trieste	Austria	14	4	E	45	46	N
Trincomalee	Ceylon	81	12	E	8	32	N
Troyes	France	4	5	E	48	18	N
Tripoli	Africa	13	12	E	32	53	N
Tulle	France	1	54	E	45	16	N
Tunis	Africa	10	11	E	36	48	N
Turin	Piedmont	7	40	E	45	4	N
Uraniburg	Denmark	12	43	E	55	55	N
Valence	France	4	54	E	44	56	N
Vannes	Ditto	2	45	W	47	39	N
Venice	Italy	12	21	E	45	26	N
Versailles	France	2	7	E	48	48	N
Vienna	Austria	16	23	E	48	13	N
Wardhuys	Lapland	31	7	E	70	22	N
Warsaw	Poland	21	3	E	52	14	N
Washington	America	77	0	W	38	55	N
Wilna	Poland	25	18	E	54	41	N
Yakutsk	Siberia	129	52	E	62	2	N
Yarmouth	England	1	40	E	52	55	N

XV. WEIGHTS AND MEASURES.

An Act of Parliament was passed on the 17th of June 1824, (cap. 74. Geo. IV.) entitled, "an Act for Ascertaining and Establishing Uniformity of Weights and Measures," which was partially amended by clause (A) of an Act to prolong the time of the commencement of that Act to January, 1826.

In the first and second clauses of this Act it is enacted, that the old standard yard of 1760, in the custody of the Clerk of the House of Commons, shall continue to be the standard unit of extension, or lineal, superficial, and solid measures, when the temperature is at 62° of Fahrenheit's thermometer. From this it is evident that no change is to be made upon these measures throughout the empire, and that all the measurements depending upon them are to remain the same as before. In Scotland, however, considerable changes must take place, especially in the measurement of land, which is universally measured by the Scots acre, raised from the Scots' chain, or 24 times the length of the Scots' ell. This ell, according to the oldest and best authority, is 37⅛ English inches, from which standard, of course, the equalization of the Scots' land measures must be derived.

In the third clause it is enacted, that if the standard yard should be lost or injured, it is to be restored by a reference to the length of the pendulum, vibrating seconds in the latitude of London, at the level of the sea, and in vacuo. This length has been found, and is by the act declared to be 39.1393 inches. Hence the length of the yard to that of the pendulum is in the proportion of 36 inches to 39.1393 inches, or of the number 360,000 to the number 391,393; so that if the length of the pendulum be divided into 391,393 equal parts, then will 10,000 of these parts be the length of an inch, according to the imperial standard.

The fourth clause enacts, that the old Troy pound, of 1758, now in the custody of the Clerk of the House of Commons, shall continue to be the standard unit of weight; and that the Avoirdupois pound, now in use, shall contain 7000 grains, of which the Troy pound contains 5760, according to this act. Hence, contrary to the opinion of many writers, the weight of the Troy or standard pound, to that of the Avoirdupois or common pound, is in the proportion of 5760 grains to 7000 grains; or of the number 144, to the number 175. Hence, also, no change will take place in the transactions of business where such weights were used formerly; but in Scotland, numerous changes of weights must occur in the sale of many articles of ordinary consumption. These changes will be not only different in almost every county, but even sometimes different in various parts of the same county. The use of the Dutch or Scots Troy pound, and of the Tron which varies so much throughout that country, will be utterly abolished, and all local enactments regarding them rendered nugatory. According to the best authorities, the standard Dutch or Scots Troy (or, as it is sometimes called, the Lanark pound), contains 7621$\frac{5}{11}$ English Troy grains; and the old Tron, most in use,

10003$\frac{7}{11}$ English Troy grains: upon these data, our tables of equalization for the weights of Scotland are founded.

In the sixth clause it is enacted, that if the standard Troy pound should be lost or destroyed, it is to be restored by a reference to the weight of a cubic inch of distilled water, which has been found, and is declared to be 252.458 Troy grains, at the temperature of 62° Fahrenheit, the barometer being at 30 inches. Hence the weight of a pennyweight Troy is to that of a cubic inch of distilled water, in such circumstances, in the proportion of 24 grains to 252.458 grains, or of the number 24,000 to the number 252,458; so that the weight of the cubic inch of water must be divided into 252,458 equal parts, and 24,000 of them will be the standard pennyweight, from which the ounce and the pound, its multiples, can be easily derived.

The sixth clause enacts, that the *new* standard measure of capacity for all liquids, and dry goods not measured by heaping, shall be a gallon containing 10 pounds avoirdupois weight of distilled water, weighed in air at the temperature of 62° Fahrenheit's thermometer, the barometer being at 30 inches; that the quart shall be the fourth part of this Imperial standard gallon, and the pint one-eighth; that two such gallons shall be a peck, and eight shall be a bushel; and that eight such bushels shall be a quarter of corn, or other dry goods, not measured by heaped measure. To find the capacity of this new gallon, it is necessary to refer to the fifth clause of the act, where we have the standard weight of a cubic inch of water given in grains; hence we find the number of cubic inches in the gallon by the following proportion: As 252.458 grains: 1 cubic inch :: 10lbs. or 70,000 grains: 277.274 cubic inches, which is consequently the content of the Imperial standard gallon. Though the identification of this gallon is thus remotely connected with the standard of length, and still more so with the length of the pendulum, yet it may be proper here to point out a mode of verifying it, and restoring it, if ever the standards of weight or measure should be lost or destroyed. *The content of the cube of the sixth part of the length of the pendulum vibrating seconds in the latitude of London at the level of the sea and in a vacuum, is so very near that of the Imperial standard gallon, that the difference is only about $\frac{3}{10}$ of a cubic inch.* For, one-sixth part of the length of the pendulum is 6.5232166 inches; and the cube of this is nearly 277.578 cubic inches, which differs from the contents of the gallon only by .304 of a cubic inch. Now this difference is so small, that the one may be reckoned a sufficient identification of the other, a circumstance which brings this gallon nearer to a fixed and invariable standard than perhaps was ever thought of. Another circumstance of considerable importance may be remarked, as it serves to render the standard of weight, determined by water, independent of thermometric graduations. *The temperature* (62° Fahrenheit's thermometer) *at which the water has been fixed for the determination of the standards of weight and measure, is one which is situated above the freezing point, at exactly the sixth part of the distance between the freezing and the boiling points.*

The connection of these two facts will therefore render the standards of weight and of measure so far invariable in future, inasmuch as they are independent of artificial measurements and graduations, and can be easily referred to nature alone for their prototypes; 1. That the cube of the sixth part of the second's pendulum at London is so near the capacity of the imperial standard gallon as to be considered an identification; and, 2. That the tenth part of the weight of an Imperial standard gallon of water, at a temperature above that of freezing (in the mercurial thermometer), which is exactly the sixth part of the distance between the freezing and boiling points, is an Imperial standard avoirdupois pound.

The changes which this alteration in the standard of capacity produces, are very great. By this clause the old standard wine gallon of 231 cubic inches, the old standard ale and beer gallon of 282 cubic inches, the old standard corn gallon of 268.8 cubic inches, or the standard Winchester bushel of 2150.42 cubic inches, the old standard Scots pint or (Stirling jug) of 103.404 cubic inches, and the old standard Scots wheat and barley firlots, (commonly called the Linlithgow wheat and barley firlots,) with all other local measures of every description, are completely abolished. The seventh clause enacts that the standard measure of capacity for goods sold by heaped measure, shall be the bushel, containing 8 Imperial gallons, or 80 avoirdupois pounds, of water at the above-mentioned temperature; and that it shall be made round, with a plain and even bottom, and be 19½ inches from outside to outside. In the eighth clause it further enacts, that in using this bushel, it shall be heaped, in the form of a cone, to the height of 6 inches, and the outside of the bushel is to be the extremity of the base of this cone. In the clause appended to the Bill above alluded to, it is enacted, that all such measures shall be made cylindrical, and that their diameters shall be at the least double their depths, and the height of the cone or heap shall be equal to ¾ of the depth of each measure, its outside being the extremity or base of the cone.

I. LONG MEASURE.

STANDARD.—The length of the Pendulum vibrating seconds of Mean Time in the Latitude of London at 62° of Fahrenheit's Thermometer, and in a Vacuum at the level of the Sea, is equal to 39.1393 inches of the Brass "Standard Yard of 1760," or "Imperial Standard Yard."

			Pendulums.
$\frac{1}{39.1393}$th of the Pendulum	= 1 Inch	=	.025550
12 Inches	= 1 Foot	=	.306597
3 Feet	= 1 Yard	=	.919792
5½ Yards	= 1 Pole or Perch	=	5.058854
40 Poles or 220 Yards	= 1 Furlong	=	202.354156
8 Furlongs or 1760 Yards	= 1 Mile	=	1618.833244

N.B.—The English Land Chain = 22 yards or 66 feet, and contains 100 links; 1 link = 7.92 inches.

II. SQUARE OR SUPERFICIAL MEASURE.

STANDARD.—The same as in Long Measure.

			Square Pendulums.
$\frac{1}{1531.8468}$th of the Square Pendulum	= 1 Square inch	=	.000653
144 Square inches	= 1 Square foot	=	.094002
9 Square feet	= 1 Square yard	=	.846017
30¼ Square yards	= 1 Square pole	=	25.592003
40 Square Poles or 1210 Sq. yds.	= 1 Rood of land	=	1023.680107
4 Roods or 4840 Square yards	= 1 Acre of land	=	4094.720426

N.B.—The Square Chain = 484 Square yards, and 10 Square Chains = 1 Acre.

III. CUBIC OR SOLID MEASURE.

STANDARD.—The same as in Long Measure.

			Cubic Pendulum.
$\frac{1}{59936.8968}$th of the Cubic Pendulum	= 1 Cubic inch	=	.0000176
1728 Cubic inches	= 1 Cubic foot	=	.0288207
27 Cubic feet	= 1 Cubic yard	=	.7781587

N.B.—A Cubic foot of distilled water at 62° Fahrenheit, weighs almost *exactly* 997.136969 Ounces Avoirdupois, and at the maximum density 999.2777 Ounces Avoirdupois.

IV. TROY WEIGHT.

STANDARD.—One Cubic Inch of distilled water at 62° Fahrenheit's Thermometer, the Barometer being at 30 inches, weighs 252.458 *Troy Grains.* One Pound = 5760 Grains.

			Cubic inches of water.
$\frac{1}{252.458}$th of a Cubic inch of water	= 1 Grain	=	.0039610571428
24 Grains	= 1 Pennywt.	=	.0950653714285
20 Pennyweights	= 1 Ounce	=	1.901307428571
12 Ounces	= 1 Pound	=	22.815689142857

N.B.—A Cubic inch of distilled water at the maximum density, weighs 253 Troy Grains.

V. AVOIRDUPOIS WEIGHT.

STANDARD.—The same as in Troy Weight; and One Avoirdupois Pound = 7000 *Troy Grains.*

			Cubic inches of water.		New Gallons of water.
27 11/32 Grains	= 1 Dram	=	.10831015625	=	$\frac{1}{256}$
16 Drams	= 1 Ounce	=	1.7329625	=	$\frac{1}{160}$
16 Ounces	= 1 Pound	=	27.7274	=	$\frac{1}{10}$
28 Pounds	= 1 Quarter cwt.	=	776.3672	=	2⅔
4 Quarters	= 1 Hundred wt.	=	3105.4688	=	11⅓
20 Cwt.	= 1 Ton	=	6210.93760	=	224

N.B.—175 Troy Pounds = 144 Avoirdupois Pounds; and 175 Troy Ounces = 192 Avoirdupois Ounces.

VI. IMPERIAL GALLON MEASURE,

For all sorts of Liquids, Corn, and other Dry Goods.

STANDARD.—Ten pounds Avoirdupois, or 277.274 cubic inches of distilled water (at 62° Fahrenheit's Thermometer, the Barometer being at 30 inches) are the contents of the New Imperial Gallon.

			Pounds Avoirdupois of water.		Cubic inches of water.
5 Oz. Avoirdupois of water	= 1 Gill	=	$\frac{5}{16}$	=	8.6643125
4 Gills	= 1 Pint	=	$1\frac{1}{4}$	=	34.65925
2 Pints	= 1 Quart	=	$2\frac{1}{2}$	=	69.3185
4 Quarts	= 1 Gallon	=	10	=	277.274
2 Gallons	= 1 Peck	=	20	=	554.548
4 Pecks or 8 Gallons	= 1 Bushel	=	80	=	2218.192
8 Bushels	= 1 Quarter	=	640	=	17745.536

N.B.—The proportion of the Imperial Gallon to the Wine Gallon is as 6 to 5 nearly, to the Ale Gallon as 59 to 60 nearly, and to the Corn Gallon as 33 to 32 nearly; its proportion to the Stirling Pint is as 59 to 22 nearly.

VII. HEAPED MEASURE,

For Coals, Culm, Lime, Fish, Potatoes, Fruit, &c.

STANDARD.—Eighty Pounds Avoirdupois, or 2218.192 cubic inches of distilled water at 62° Fahrenheit's Thermometer, the Barometer being at 30 inches, are the contents of the New Bushel, which is to be made "round with a plain and even bottom, being 19½ inches from outside to outside," and to be heaped in the form of a cone to the height of 6 inches.

		Pounds Avoirdupois of water.		Cubic inches of water.
8 Imperial Gallons	= 1 Bushel	=	80	= 2218.192
3 Bushels	= 1 Sack	=	240	= 6654.576
12 Sacks	= 1 Chaldron	=	2880	= 79854.912

N.B.—The depth of the Imperial Bushel is required by the Act, to be 8 inches, though this is not expressed; because the height of the heap or cone is 6 inches, and this must be equal to three-fourths of the depth.

N.B.—The proportion of the Imperial Bushel to the Linlithgow Wheat Firlot is as 106 to 105 nearly, and to the Barley Firlot as 92 to 133 nearly.

VIII. DIMENSIONS OF THE DRY MEASURES.

STANDARD.—"The diameter shall be at least double the depth, and the height of the cone or heap shall be equal to three-fourths of the depth."

Imperial Dry Measures.	Depth.	Inside Diameter.	Outside Diameter at the mouth.	Breadth at the edge.	Height of the Heap.	Content when not heaped.	Content when heaped.
	Inches.	Inches.	Inches.	Inches.	Inches.	Cub. ins.	Cub. ins.
Bushel ..	8.00000	18.78925	19.50000	.35538	6.00000	2218.192	2815.488
½ Bushel .	6.34960	14.91304	15.47716	.28206	4.76220	1109.096	1407.744
Peck	5.03968	11.83648	12.28422	.22387	3.77976	554.548	703.872
Gallon or ¼ Peck .	4.00000	9.39463	9.75000	.17769	3.00000	277.274	351.936
Half Gall.	3.17480	7.45652	7.73858	.14103	2.38110	138.637	175.968
Quart ...	2.51984	5.91824	6.14211	.11194	1.88988	69.3185	87.984

APPROXIMATE DIMENSIONS OF THE DRY MEASURES.

Imperial Dry Measure.	Depth.	Inside Diameter.	Outside Diameter at the mouth.	Breadth at the edge.	Height of the Heap.
	Inches.	Inches.	Inches.	Inches.	Inches.
Bushel	8	$18\frac{13}{16}$	$19\frac{1}{2}$	$\frac{3}{8}$	6
Half Bushel	$6\frac{1}{8}$	$14\frac{7}{8}$	$15\frac{1}{2}$	$\frac{5}{16}$	$4\frac{3}{4}$
Peck.....	$5\frac{1}{16}$	$11\frac{13}{16}$	$12\frac{5}{16}$	$\frac{1}{4}$	$3\frac{3}{4}$
Gallon	4	$9\frac{3}{8}$	$9\frac{3}{4}$	$\frac{3}{16}$	3
Half Gallon	$3\frac{1}{16}$	$7\frac{7}{16}$	$7\frac{3}{4}$	$\frac{1}{8}$	$2\frac{3}{8}$
Quart	$2\frac{1}{2}$	$5\frac{15}{16}$	$6\frac{1}{8}$	$\frac{1}{8}$	$1\frac{7}{8}$

TABLES OF EQUALIZATION.

In the following Tables of Equalization, the most exact proportions are adopted, viz. 277274 English Wine Gallons = 231000 Imperial Gallons; 277274 English Ale Gallons = 282000 Imperial Gallons; 277274 English Corn Gallons = 268800 Imperial Gallons; 138637 Standard Scots Pints = 103404 Imperial Half Gallons; 2218192 Standard Wheat Firlots = 2197335 Imperial Bushels; 2218192 Standard Barley Firlots = 3205524 Imperial Bushels; 7000 Troy Pounds = 5760 Avoirdupois Pounds; 7000 Dutch or Scots Troy Pounds = $7621\frac{9}{11}$ Avoirdupois Pounds; 7000 old Tron Pounds = $10003\frac{7}{11}$ Avoirdupois Pounds; 32 Glasgow Tron Pounds = 45 Avoirdupois Pounds; 360 Standard Scots Ells = 372 Imperial Yards; and 3025 Standard Scots Acres = 3844 Imperial Acres. These tables are also Equalization Tables of Prices, as well as of Weights and Measures, but in the inverse ratio of the latter. Thus, for example, 1 lb. Tron = 1.429091 lb. Avoirdupois, but when the price of a lb. Avoirdupois is = 1, the price of a lb. Tron is = 1.429091; also 1 lb. Avoirdupois = .699746 lb. Tron, but when the price of a lb. Tron is = 1, the price of a lb. Avoirdupois is = .699746; the whole of the Tables are calculated to the nearest millionth part of an unit.

	English Wine Gallon = Imperial Gal.	English Ale Gallon = Imperial Gal.	English Corn Gal. or Bushel = Imperial Gal. or Bushel.	Standard Scots Pint = Imperial Half-Gallon.
1	0.833111	1.017045	0.969438	0.748615
2	1.666222	2.034089	1.938876	1.497230
3	2.499333	3.051134	2.908315	2.245845
4	3.332444	4.068178	3.877753	2.994460
5	4.165555	5.085223	4.847191	3.743075
6	4.998666	6.102267	5.816629	4.491690
7	5.831777	7.119312	6.786067	5.240305
8	6.664887	8.136356	7.755505	5.988920
9	7.497998	9.153401	8.724944	6.737534

	Standard Wheat Firlot = Imp. Bushel.	Standard Barley Firlot = Imp. Bushel.	Imperial Gallon = English Wine Gallon.	Imperial Gallon = English Ale Gallon.
1	0.990597	1.445161	1.200320	0.983241
2	1.981195	2.890321	2.400641	1.966482
3	2.971792	4.335482	3.600961	2.949723
4	3.962389	5.780643	4.801281	3.932965
5	4.952986	7.225803	6.001602	4.916206
6	5.943584	8.670964	7.201922	5.899447
7	6.934181	10.116125	8.402242	6.882688
8	7.924778	11.561285	9.602563	7.865929
9	8.915376	13.006446	10.802883	8.849170

	Imperial Gal. or Bush. = English Corn Gal. or Bush.	Imp. Half-Gal. = Standard Scots Pint.	Imperial Bushel = Standard Wheat Firlot.	Imperial Bushel = Standard Barley Firlot.
1	1.03152	1.340731	1.009492	0.691990
2	2.063051	2.681463	2.018984	1.383981
3	3.094576	4.022194	3.028476	2.075971
4	4.126101	5.362926	4.037968	2.767962
5	5.157626	6.703657	5.047460	3.459952
6	6.189152	8.044389	6.056952	4.151943
7	7.220677	9.385120	7.066444	4.843933
8	8.252202	10.725852	8.075936	5.535924
9	9.283728	12.066583	9.085428	6.227914

	Troy lb. = Imperial lb.	Standard Dutch or Scots Troy lb. = Imperial lb.	Old Tron lb. = Imperial lb.	Glasgow Tron lb. = Imperial lb.
1	0.822857	1.088831	1.429091	1.40625
2	1.645714	2.177662	2.858182	2.81250
3	2.468571	3.266494	4.287273	4.21875
4	3.291429	4.355325	5.716364	5.62500
5	4.114286	5.444156	7.145455	7.03125
6	4.937143	6.532987	8.574545	8.43750
7	5.760000	7.621818	10.003636	9.84375
8	6.582857	8.710649	11.432727	11.25000
9	7.405714	9.799481	12.861818	12.65625

	Standard Scots Ell = Imperial Yard.	Standard Scots Acre = Imperial Acre.	Imperial lb. = Troy lb.	Imperial lb. = Standard Dutch lb.
1	1.033333	1.270744	1.215278	0.918412
2	2.066667	2.541488	2.430556	1.836824
3	3.100000	3.812231	3.645833	2.755237
4	4.133333	5.082975	4.861111	3.673649
5	5.166667	6.353719	6.076389	4.592061
6	6.200000	7.624463	7.291667	5.510473
7	7.233333	8.895207	8.506944	6.428885
8	8.266667	10.165950	9.722222	7.347298
9	9.300000	11.436694	10.937500	8.265710

	Imperial lb. = Old Tron lb.	Imperial lb. = Glasgow Tron lb.	Imperial Yard = Standard Scots Ell.	Imperial Acre = Standard Scots Acre.
1	0.699746	0.711111	0.967742	0.786941
2	1.399491	1.422222	1.935484	1.573881
3	2.099237	2.133333	2.903226	2.360822
4	2.798982	2.844444	3.870968	3.147763
5	3.498728	3.555556	4.838710	3.934703
6	4.198473	4.266667	5.806452	4.721644
7	4.898219	4.977778	6.774194	5.508585
8	5.597964	5.688889	7.741935	6.295525
9	6.297710	6.400000	8.709677	7.082466

XVI. EXPLANATION OF SIGNS

Used in Mathematical Operations, to denote the Relation of Numbers, Magnitudes, and Quantities.

[The characters with which these signs are used, are either the arithmetical figures as denoting numbers, or the letters of the alphabet, as denoting magnitudes or quantities.]

=, ***Equality***, denotes that the numbers or quantities between which it is placed are equal to each other: as 2 and 2=4.

+, ***Addition***, generally called *plus*, a Latin word for *more:* it denotes that the numbers, or quantities between which it is placed, are to be added together, as 3 + 2, or 3 *more* 2, are equal to 5, or 3+2=5.

—, *Subtraction*, called *minus*, meaning *less*: it is placed between numbers or quantities, and denotes that the number, &c., placed after it, is to be subtracted from that which is before it, as $5-2=3$.

×, or •, *Composition*, or *Multiplication*, denotes that the numbers between which it is placed, are to be *multiplied* by each other, or together, as 5×3, or $5 \cdot 3=15$. In numbers, it is best to use ×, as . is apt to be mistaken for a decimal point. With letters it is indifferent which is used; and single letters are understood to be multiplied where there is no sign between them: as *a b* denotes the product, or result of the multiplication of the two numbers represented by *a* and *b*.

Numbers multiplied together are called *factors*.

÷, *Resolution*, or *Division*, denotes that the number before it is to be *divided* by the number after it: as $15\div3=5$. When the number after the sign is greater than that before it, the quotient, or result of the division, cannot be expressed in a common number, because it is less than 1, which is the least common number In these cases the quotient is indicated by placing the number to be divided above a line, and the divisor below. Thus the quotient of $3\div4$, is expressed by $\frac{3}{4}$. An expression of this kind is called a *fraction*. The upper number the *numerator*, and the under one the *denominator;* and the *value* of the fraction is the same part of 1 that the numerator is of the denominator. If the 1 in question admit of division into parts, the value of the fraction may be expressed in those parts: thus if the 3, in the above example, denoted pounds, the result of the division of it by 4 would be three-fourths of a pound, or fifteen shillings. When we require only to express the division and not perform it, the fraction is sufficient: as $\frac{15}{3}$ is the same as $15\div3$. Arithmetical operations cannot be performed with letters, and thus the fraction is the only form in which we can point out the dividing of one letter by another: as $\frac{a}{b}$ is the only way in which we can express the quotient of $a\div b$.

:, *Ratio*, denotes that the numbers or quantities between which it is placed, have some relation or proportion to each other. In expressing ratios that are equal, instead of = the usual sign of equality, :: is used. Thus the expression $a : b :: c : d$, means that as *a* is to *b* so is *c* to *d*, and 2 : 4 :: 6 : 12, as 2 is to 4, so is 6 to 12.

Any one relation of the magnitude or value of one thing, or quality, is called a *ratio*.

>, *Majority*, denotes that the number or quantity which is placed before it is greater than that which follows: as $a>b$, that the quantity expressed by *a* is greater than that represented by *b*.

<, *Minority*, is the reverse of majority, as $c<d$ expresses, that the quantity *c* is less than that of *d*.

=, >, and <, are used to denote the relations of ratios, or proportions, as well as of single numbers and quantities: thus

$a : b = c : d$, means that a is the same part or portion of b that c is of d; $a : b > e : d$, means that a is a greater part of b than c is of d; and $a : b < c : d$, means that a is a less part of b than c is of d. The same may be expressed by making the first, or *antecedent* term of each ratio, numerator of a fraction, and the last, or *consequent* term, denominator. Thus $\frac{a}{b} = \frac{c}{d}$, $\frac{a}{b} > \frac{c}{d}$ and $\frac{a}{b} < \frac{c}{d}$, are respectively the same as, $a : b = c : d$, $a : b > c : d$, and $a : b < c : d$.

When ratios vary, the signs are conveniently written $\doteq$, $\dot{>}$, $\dot{<}$.

$\overline{}$, *Connexion* (*vinculum*, or tie) drawn over numbers or quantities, connected by signs, or the enclosing of such between parenthetical characters, denotes that they are to be taken as *one*, that is, as the single number or quantity that would result after all the operations were performed. Thus, $\overline{8+6 \div 7}$, or $(8+6) \div 7$, denotes that the sum of 8 and 6 is to be divided by 7, and is the same as $\frac{14}{7}$ or 2; but $8+6 \div 7$, without the sign of connexion, is $8\frac{6}{7}$. Again $\overline{24-3 \times 8}$, or $(24-3) \times 8$, is the same as 21×8, that is 168; but if the sign of connexion be taken away it becomes $24-24$, or 0.

^{n}, *a Power.* A number or letter written over the right of another in a smaller character is called an *exponent*, and denotes that the number or letter over which it is written, is understood to be used as a factor in multiplication as often as is expressed by the exponent. Thus 4^3, is the same as $4 \times 4 \times 4$, or 64. An expression of this kind is called a *power* of the number or quantity to which the exponent is affixed, and that number or quantity is called the *root*. The performing of the multiplications is called *involution*; and the number of multiplications is always one less than the number expressed by the exponent, because *two* factors are required for the first multiplication, and one additional factor for every succeeding one. If the root consist of several numbers or letters, they must be inclosed in parentheses, or placed under a *vinculum*.

$\sqrt[n]{}$, *a Root.* When a number or letter is considered as a *power*, the root of it is denoted by placing the sign $\sqrt{}$ before it, and writing the exponent over the sign, in the place of the small letter n: thus $\sqrt[3]{64}$, is the third root of 64, that is, it is 4. If the power consist of several numbers or letters, they must be connected. Thus, $\sqrt[2]{\overline{4+12}}$, or $\sqrt[2]{(4+12)}$, is 4; but $\sqrt[2]{4+12}$, without the connexion, is 14. For the *second* root, or, as it is called, the *square* root, the sign is used without the exponent: as $\sqrt{9}=3$. Roots are also expressed by fractional exponents, over the right: as $a^{\frac{1}{3}}$, is the same as $\sqrt[3]{a}$.

∞, *Indefinitude*, denotes that the quantity before which it is put, is greater or less than any value that can be assigned: as $\frac{b}{0}$, or $\frac{0}{0}$.

PART III.

USEFUL DIRECTIONS AND REMARKS.

XVII. ADVICE TO THE POOR*.

LEARN to reflect often on the nature of your being; on the duties imposed on you by the laws of the Creator, which cannot be neglected or evaded without future suffering.

The great mass of mankind are destined inevitably to live by labour; some are undoubtedly exempted from the necessity of working; they are few in comparison of the number who must submit to live by industry. But the wealth of the rich has arisen from labour. Capital, money, and property, are no more than the savings made from the produce of labour, beyond the portion which was required for the preservation of the individuals who have worked to raise it. Upon these grounds, the rich are as justly entitled to their large possessions, as the cottager to his cottage.

There is no man enjoying a common portion of health and strength, but he may gain by work more than it is necessary for him to consume for his preservation, and even for his comfort. He may always, by forbearance, lay by something. This is proved, by men being able, by their personal industry, to support a wife and young children; the amount of whatever this young family consume might have been saved before his marriage, and might have been laid by for future use.

Marriage is the state to which the poor look forward. It is more necessary to them than to the rich; the labourer wants a helpmate; his home is miserable without one.

Begin, therefore, early to provide for it. Lay by a little money to buy a bed, and the most necessary articles of furniture in a house. Do not begin by getting in debt; if you do, you will probably never be free from it.

If you have ready money, you may deal to great advantage with tradesmen; you can chuse the best articles at a fair price. The tradesman who permits you to run in debt, permits it only because he calculates by so doing it will be advantageous to himself. He sells inferior articles at the same price as the best; and as he is aware he will have many bad debts owing to him, he charges those who do pay the more, to compensate such losses. The village shopmen always deal upon these principles. Look at their books; many of the poor owe them thirty, forty, or fifty shillings; this debt is never cleared, and the poor man, thus involved, dares not buy anywhere else.

If you have any money beforehand, go to the best market in

* In this, and in the following chapter, the advice is not only meant to be read by the poor, but to furnish useful hints to all who attend to the physical and moral improvement of their humbler neighbours.

the neighbourhood, or let your wife go once a week, or once a fortnight; you will get for seven or eight shillings there, better articles than you will get for ten shillings at the village shop, and better weight: in a public market the dealer dares not venture to use false weights; at the village shop most of the poor are in debt, and none dare to complain, lest they should be refused credit.

Send your wife to market, in preference to going yourself. Women are less subject to the temptation of drinking than men. They are better bargainers than men; they are quick in detecting defects and small differences in goods; their minds readily seize on the point of view advantageous to themselves; they express themselves with readiness and ease; they discover and aim at the weak points of defence in a tradesman, with a dexterity which it is in vain for the husband to attempt to imitate. A woman is worth, on these occasions, from two shillings to five shillings in the pound more than a man. A tradesman who would stand firm against a charge of cavalry, will often yield to the management of a female customer.

Sometimes there are found in a village, experienced, trusty, and clever females, who will market for several families. This is the cheapest mode. The expense of it is divided amongst many; often the wife cannot be well spared from the care of the house and children; and by thus employing another, her time and the wear of her clothes are saved.

Poor-Rate.

The poor-rate is become the stumbling-block to the independence and happiness of the labourers. They have been taught to look forward to it as a resource on most occasions, and very often on occasions where their own industry and economy might easily have supplied its place.

The poor-rate may have, perhaps, become a necessary contribution, to lessen occasionally the misery, sudden poverty, and want of employment, arising from the changes in the value of money and property, and from the unexpected diminution of different branches of trade and commerce; but the poor person, when he takes or applies for relief, should always reflect that he who claims it is not honest if his own labour and work can suffice to provide for his wants. Suppose two labourers of equal strength, and with equal means of getting employment; the one is prudent and saves; the other is often idle, and squanders all he gets; if the latter should, in any distress, apply to the former for assistance, his answer would be, you can work; forbear, and save as I do. Why should I labour to supply you? Now, there is no difference between the case of these two labourers, and between the labourer and the poor-rate. It is as immoral and unjust to take unnecessarily from the industrious and saving, under shelter and pretence, and by force of a law which is made, and a tax which is raised, for other objects, as to pillage it from the pocket of your fellow-labourer.

The labourer is too apt to consider the poor-rate as a portion of

his property, as a part of a charity estate held for his benefit; but the true nature of this fund is, that a portion of the industry, labour, and savings of the prudent and wise, are called for and employed to provide for their fellow-creatures, from mere motives of mercy and kindness. All frauds upon such a fund are disgraceful, and wherever they are detected, are sure to bring the person guilty into disrepute, suspicion, and ill-will.

XVIII. ON VENTILATION AND HOUSEHOLD CLEANLINESS.

We are all thoroughly aware of the necessity of breathing; and the agreeable freshness and reviving influence of the pure morning air must convince us that the breathing a pure atmosphere is conducive to health; yet we as carefully exclude the air from our houses as if its approach were noxious. Intending to shut out the inclemencies of the weather only, in our care to guard ourselves from the external air, we hinder that renewal of the atmosphere which is necessary to prevent its becoming stagnant and unfit to support animal life.

Few persons are aware how very necessary a thorough ventilation is to the preservation of health. We preserve life without food for a considerable time, but keep us without air for a very few minutes and we cease to exist. It is not enough that we have *air*, we must have *fresh air*; for the principle by which life is supported is taken from the air during the act of breathing. One fourth only of the atmosphere is capable of supporting life; the remainder serves to dilute the pure vital air, and render it more fit to be respired. A full grown man takes into his lungs nearly a pint of air each time he breathes; and when at rest, he makes about twenty inspirations in a minute. In the lungs, by an appropriate apparatus, the air is exposed to the action of the blood, which changes its purer part, the vital air, (oxygen gas,) into fixed air, (carbonic acid gas,) which is not only unfit to support animal life, but is absolutely destructive of it. An admirable provision of the great Author of nature is here visible, to prevent this exhausted and now poisonous air from being breathed a second time:—while in the lungs, the air receives so much heat as makes it specifically lighter than the pure atmosphere; it consequently rises above our heads during the short pause between throwing out the breath and drawing it in again, and thus secures to us a pure draught. By the care we take to shut out the external air from our houses, we prevent the escape of the deteriorated air, and condemn ourselves to breathe again and again the same contaminated, unrefreshing atmosphere.

Who that has ever felt the refreshing effects of the morning air can wonder at the lassitude and disease that follow the continued breathing of the pestiferous atmosphere of crowded or ill-ventilated

apartments? It is only necessary to observe the countenances of those who inhabit close rooms and houses, the squalid hue of their skins, their sunken eyes, and their languid movements, to be sensible of the bad effects of shutting out the external air.

Besides the contamination of the air from being breathed, there are other matters which tend to depreciate its purity: these are the effluvia constantly passing off from the surface of animal bodies, and the combustion of candles and other burning substances. On going into a bed-room in a morning, soon after the occupant has left his bed, though he be in perfect health and habitually cleanly in his person, the sense of smelling never fails to be offended with the odour of animal effluvia with which the atmosphere is charged. There is another case, perhaps, still more striking, when a person fresh from the morning air enters a coach in which several persons have been close-stewed during a long night. He who has once made the experiment will never voluntarily repeat it. The simple expedient of keeping down both windows but a single half-inch would prevent many of the colds, and even fevers, which this injurious mode of travelling often produces. Outside passengers, though they may suffer a little more from cold and wet, generally escape these every-day complaints of those who pay double their fare. If, under such circumstances, the air is vitiated, how much more injuriously must its quality be depreciated when several persons are confined to one room, where there is an utter neglect of cleanliness; in which cooking, washing, and all other domestic affairs are necessarily performed; where the windows are immovable, and the door is never opened but while some one is passing through it! On entering such a den of filth, the nose is saluted by a stench so horrible, as to make any person, unused to it, recoil and pause before he ventures in; but the wretched inhabitant has his sense of smelling so blunted, that he does not perceive that, with every breath he takes, he inhales a poison, which is sapping the vigour of his body, and destroying the energies of his mind.

This is the condition of too many of our poorer neighbours in town and country. Can we wonder that, with such absolute neglect, all the diseases of persons so situated should be of a dangerous character? or that the mind should be dispirited, and that the man should fly to drams for relief from the burthen which he finds to be weighing him down?

It may be taken as a wholesome general rule, that whatever produces a disagreeable impression on the sense of smelling is unfavourable to health. That sense was doubtless intended to guard us against the dangers to which we are liable from vitiation of the atmosphere. If we have, by the same means, a high sense of gratification from other objects, it ought to excite our admiration of the beneficence of the Deity in thus making our senses serve the double purpose of affording us pleasure and security; for the latter end might just as effectually have been answered by our being only susceptible of painful impressions.

To keep the atmosphere of our houses free from contamination, it is not sufficient that we secure a frequent renewal of the air—all

matters which can injure its purity must be carefully removed. The linen of beds should not be allowed to remain unchanged till it has lost all appearance of ever having been white, or of ever having had any acquaintance with the washing-tub. The contents of chamber-vessels should not be left in the house an instant, if it be possible, and certainly not in the room of a sick person: every moment they remain they fill the air with a filthy odour which is little less than poisonous to all who breathe it.

Those who have but one apartment in which they must of necessity perform all the domestic duties, should be careful to remove all matters that are offensive in smell, as cabbage-water, dirty soapsuds, &c.; they should indeed, if possible, avoid washing in the room they live in. For the same reason, drying clothes in-doors should be avoided.

Flowers in water and living plants in pots greatly injure the purity of the air during the night, by giving out large quantities of an air (carbonic acid) similar to that which is separated from the lungs by breathing, which, as before stated, is highly noxious. On this account they should never be kept in bed-rooms: there are instances of persons, who have incautiously gone to sleep in a close room in which there has been a large growing plant, having been found dead in the morning, as effectually suffocated as if there had been a charcoal stove in the room.

A constant renewal of the air is absolutely necessary to its purity: for in all situations it is suffering either by its vital part being absorbed, or by impure vapours being disengaged and dispersed through it. *Ventilation, therefore, resolves itself into the securing a constant supply of fresh air.*

In the construction of houses, especially in those built for the poor, this great object has been too generally overlooked, when, by a little contrivance in the arrangement of windows and doors, a current of air might, at any time, be made to pervade every room of a house of any dimensions. Rooms cannot be well ventilated that have no outlet for the air; for this reason there should be a chimney to every apartment. The windows should be capable of being opened, and they should, if possible, be situated on the side of the room opposite to, and furthest from, the fire-place, that the air may traverse the whole space of the apartment in its way to the chimney.

Fire-places in bed-rooms should not be stopped up with chimney-boards. The windows should be thrown open for some hours every day, to carry off the animal effluvia which are necessarily separating from the bed-clothes, and which should be assisted in their escape by the bed being shaken up, and the clothes spread abroad, in which state they should remain as long as possible; this is the reverse of the usual practice of making the bed, as it is called, in the morning, and tucking it up close, as if with the determination of preventing any purification from taking place. Attention to this direction, with regard to airing the bed-clothes and bed after being slept in, is of the greatest importance to persons of weak health. Instances have been known in which restlessness and an inability to

find refreshment from sleep would come on in such individuals when the linen of their beds had been unchanged for eight or ten days. In one case of a gentleman of a very irritable habit, who suffered from excessive perspiration during the night, and who had taken much medicine without relief, he observed that, for two or three nights after he had fresh sheets put upon his bed, he had no sweating; and that, after that time, he never awoke, but that he was literally swimming, and that the sweats seemed to increase with the length of time he slept in the same sheets. By not permitting him to sleep in the same sheets or night-clothes more than twice without their being washed, he instantly lost this debilitating affection.

Various means are had recourse to at times, with the intention of correcting disagreeable smells, and of purifying the air of sick-rooms. Diffusing the vapour of vinegar through the air, by plunging a hot poker into a vessel containing it; burning aromatic vegetables, smoking tobacco, and exploding gunpowder, are the means usually employed. All these are useless. The explosion of gunpowder may, indeed, do something, by displacing the air within the reach of its influence; but then, unfortunately, an air is produced by its combustion, that is as offensive, and equally unfit to support life as any air it can be used to remove. These expedients only serve to disguise the really offensive condition of the atmosphere. The only certain means of purifying the air of a chamber which is actually occupied by a sick person, is by changing it in such a manner that the patient shall not be directly exposed to the draughts or currents.

Chemistry has furnished the means of purifying the air of chambers in which persons have been confined with contagious diseases, so as to destroy the noxious power of the effluvia generated in such situations, and thus of preventing the disease from extending. This will be accomplished by attending carefully to the following directions.

Close all the windows and doors of the room intended to be purified, except the one by which you propose to retreat, and make up the aperture of the chimney or fire-place, except for about an inch or two at the bottom. Having put three table-spoonsful of common salt, (*muriate of soda*) rubbed fine, into a shallow dish, place it upon the floor of the apartment,—if with a few hot cinders beneath it, the better; and then pour, at once, upon the salt, a quarter of a pint of strong oil of vitriol (*sulphuric acid*); retire, and close the room for forty-eight hours. Immediately the acid is poured upon the salt a pungent vapour (*chlorine*) is given out freely, which is extremely unpleasant to breathe, and very destructive to most metallic surfaces. It is on this account that the operator should leave the apartment quickly, and that all the iron and brass furniture should be previously removed. This vapour continues forming for many hours, and diffusing itself completely through all parts of the room, effectually destroys the matter on which infection depends: at the expiration of about forty-eight hours, the room may be entered, the doors and windows

thrown open, and a fire made in the chimney, in order that the apartment may be perfectly ventilated. It may then be safely occupied. The above quantity of salt, &c., is quite sufficient for a chamber of the usual size; for a much larger room, double the quantity, divided into two vessels, should be used. The merely offensive odour of sick-rooms, or of any other apartments, may be readily corrected, by placing in them plates containing the *chloro-sodiac solution of Labaraque*, which is now well known in this country.

But no fumigation will be of any avail in purifying stagnant air, or air that has been breathed till it has been deprived of its vital part; such air must be driven out, when its place should be immediately supplied by the fresh pure atmosphere. The readiest means of changing the air of an apartment is, by lighting a fire in it, and then throwing open the door and windows: this will set the air in motion, by establishing a current up the chimney. The air which has been altered by being breathed is essential to vegetable life; and plants, aided by the rays of the sun, have the power to absorb it, while they themselves at the same time give out pure vital air. This process, going on by day, the reverse of that described before as taking place during the night, is continually in operation, so that the purification of the atmosphere can only be prevented by its being preserved in a stagnant state.

In the country, there are other circumstances which require to be attended to besides cleanliness in the house, and the free admission of the air into it at all times. Care ought to be taken that nothing be allowed to exist very near the house that can injure the purity of, or produce humidity in, the atmosphere: heaps of putrefying vegetables, dunghills, pools and ditches of stagnant water, privies and open drains, furnish a constant supply of the exhalations which produce fever. In hot seasons especially, every breeze in such neighbourhoods must carry poison with it. These things are much too common before the doors of cottages, and even of larger houses. Those who build houses for the poor would do well to choose situations sufficiently elevated to allow the waste waters to be drained off with facility: without this, they must stagnate and putrefy, to the danger of the health of the inhabitants.

XIX. POISONS.

In introducing this important subject into the Companion to the Almanac, it is not our intention to teach people either to attempt to cure themselves or others, or to neglect obtaining the best professional assistance in their power, as soon as possible, when any poison has been, either accidentally or intentionally, administered. On the contrary, we believe that nothing produces greater mischief than the endeavour to communicate to the public a smattering of medical knowledge, and that no books have contributed so effectually to supply patients for the profession of medicine and subjects for the grave, as these pseudo-medical works, which are well known under the titles of *Domestic Medicine, Medical Guides, Popular Treatises on Indigestion and Bilious Complaints, Family Physician*, and other similar compilations.

If those who have studied the profession of medicine most efficiently, and who have, by long observation and frequent opportunities, become acquainted with the influence of diseases on the animal economy, often experience the greatest difficulty in recognizing disease, and behold with regret every effort to remove it prove futile, how criminal is the temerity of persons, who, without such aids, presume to treat maladies, of the nature of which they are perfectly ignorant, and to prescribe remedies, which in the hands of the uninstructed, are as likely to destroy life as to restore health! Nothing in the history of society is, indeed, so inexplicable as the proneness to believe in quackery; and it is a curious, but a well known fact, that quacks, who from scruples of conscience have, after being successful, studied the science of medicine, have lost all their business the moment they became instructed! But although we disavow every thing like quackery, yet it cannot be denied that, in cases of poison, many valuable lives have been lost for want of knowing what can be done to arrest the symptoms, until proper professional assistance can be obtained. It is this species of information which we are desirous to communicate; and beyond it we do not presume to extend our instructions.

It is not easy to define what is strictly to be considered as a poison; for, in a general acceptation of the term, whatever destroys or injures life, is poisonous; but in this point of view both food and medicine, taken in improper quantities, and under certain circumstances, may be said to operate as poisons, and, therefore, we confine the term to those substances which, when taken into the stomach in *small doses*, or applied in any other manner to a living body, destroy health or extinguish life. Poisons are productions of the animal, the vegetable, and the mineral kingdoms; and from the effects which they cause upon the living body, may be arranged under five distinct classes, as in the following table.

Classes.	Animal Substances.	Vegetable Substances.	Mineral Substances.
I. Corrosive Poisons.	1 The blistering fly.	None.	1 Ammonia, or volatile alkali. 2 Arsenic. 3 Corrosive sublimate. 4 Lime. 5 Muriatic acid. 6 Muriate of antimony. 7 Nitrate of silver—lunar caustic. 8 Subnitrate of bismuth. 9 Nitrid acid—aquafortis. 10 Oxalic acid. 11 Solution of potass. 12 Sulphuric acid. 13 Tartaric acid. 14 Emetic tartar. 15 Verdigris. 16 White vitriol.
II. Acrid Poisons.	None.	1 Bryony root. 2 Bitter apple. 3 Gamboge. 4 Hellebore, white. 5 ——— black & fetid 6 Sow bread. 7 Spurge.—*Arum; Croton oil; Meadow Anemone; Meadow Narcissus, Ranunculus; Wolfsbane.*	1 Nitre—saltpetre.
III. Sedative, or Narcotic Poisons.	None.	1 Camphor. 2 Hemlock. 3 Henbane. 4 Laurel water. 5 Opium. 6 Prussic acid. 7 Stramonium. 8 Strong scented Lettuce 9 Tobacco.	1 Carbonic acid.
IV. Acro-narcotic Poisons.	None.	1 Cocculus Indicus. 2 Belladonna. 3 Elaterium. 4 Fox glove. 5 Fool's Parsley. 6 Funguses. 7 Meadow saffron. 8 Nux vomica.	1 White lead:—*Sugar of lead; litharge.*
V. Septic, or Putrescent Poisons.	1 Venom of snakes. 2 Stings of insects. 3 Fish poison 4 Bite of a mad dog.		

CLASS I.—CORROSIVE POISONS.

These destroy the texture of the organ or part to which they are applied; and when this organ performs functions necessary for the preservation of the entire animal machine, or is a vital organ, death generally ensues. When a person who is in good health is suddenly seized with violent pain, and the sensation of heat in the stomach and bowels, with a drawing together, or constriction of the mouth and throat; vomitings, particularly of blood, hiccough, fætor of the breath, convulsions, and either intense heat or a cold clammy moisture of the skin; if no other cause of these symptoms can be assigned, it may be suspected that a poison of this class has been swallowed. In such a case, the nature of the poison being unknown, the most beneficial step to be taken, until professional aid can be procured, is either to empty the stomach, by means of the stomach-pump, if it can be procured, or to solicit the evacuation of the poison from the stomach by tepid water or milk, containing in solution white of egg, sugar, and magnesia. Whichsoever of these mixtures is employed, it should be drunk in large quantities: but, when the poison is known, the means to be pursued vary according to its nature, as detailed in the following notices.

a. Animal corrosive poisons.

The BLISTERING FLY, *Cantharis*, is the only animal poison of this class. When it is known that it has been swallowed, which may happen by mistake, as a medicine, or by design, milk, solutions of gum or of starch, and similar demulcent fluids, should be drunk freely; the tepid bath used, and clysters of starch with camphor administered. Oil would naturally be suggested to the mind as a proper substance for sheathing the stomach in this case; but nothing can be more improper, because oil dissolves the active principle of the Blistering fly, and consequently extends its influence.

b. There is no vegetable substance belonging to the class of corrosive poisons.

c. Mineral corrosive poisons. These are very numerous: but, for our purpose, it is necessary to mention those only, which are more likely to be taken, either accidentally or by design. For the facility of reference these are alphabetically arranged.

1. AMMONIA, or *Volatile Alkali.* Many instances have occurred in which liniments, intended for external application, containing large quantities of volatile alkali, have been swallowed by mistake. Vinegar, lemon juice, or solution of citric acid, should be immediately given, and afterwards milk, mucilages, and other demulcent fluids.

2. ARSENIC. Solicit the evacuation of the stomach, by administering large draughts of tepid water, mixed with milk and sugar, or chalk and water, or lime water.

3. CORROSIVE SUBLIMATE. Give large quantities of white of egg, diluted in water. The white of egg decomposes this salt, and reduces it to the state of Calomel, which acting on the bowels, aided by the liquid, is carried off by purging.

4. LIME. Cases of poisoning by this substance must be treated in the same manner as those by ammonia.

5. Muriatic Acid; *Spirit of Salt.* That this acid has been employed as a poison may be readily detected by holding an uncorked bottle of hartshorn over the mouth of the phial or cup in which the poison was contained, whether it was in a pure state, or mixed with other substances. If the phial or cup contained muriatic acid, copious, dense, white fumes will be immediately perceptible. Administer directly calcined Magnesia, mixed in any bland fluid.

6. Muriate of Antimony; *Butter of Antimony.* This substance is employed by farriers as a horse medicine, and has, therefore, sometimes been used by suicides. Administer large draughts of a strong decoction of the yellow Peruvian Bark, and, until this can be procured, diluents in quantities sufficient to excite vomiting and to wash out the stomach should be given.

7. Nitrate of Silver; *Lunar Caustic.* This has been swallowed by mistake by children. Force into the stomach a strong solution of common salt, which forms an insoluble, and consequently innocuous substance, by uniting with the nitrate in the stomach. After this, empty the stomach by an emetic or by the stomach-pump.

8. Subnitrate of Bismuth; *Flake White.* This substance is employed as a white pigment by artists, and therefore may be taken into the stomach by mistake. Exhibit large draughts of milk, which is instantaneously curdled by the subnitrate, and involves the poison; thus affording time until professional aid can be obtained.

9. Nitric Acid; *Aquafortis.* Give a strong solution of Soap, or a mixture of calcined Magnesia in water.

10. Oxalic Acid. Many persons have been poisoned by taking this acid in mistake for Epsom salts: but this could never happen if medicine were tasted before the draught of it be swallowed; the taste of Epsom salts being bitter, and that of oxalic acid sour. As soon as possible after the poison has been taken, administer a mixture of chalk and water, which forms an insoluble and innocent compound with this acid; and afterwards evacuate the oxalate thus formed, by an emetic, aided with copious dilution, and by irritating the inside of the throat with the finger or with a feather.

11. Solution of Potass. This solution is colourless, and might be swallowed in mistake for water, by a child or an ignorant person. Vinegar or lemon-juice should be immediately administered.

12. Sulphuric Acid; *Oil of Vitriol.* This, one of the strongest of the corrosive poisons, has not unfrequently been taken by the suicide. Give immediately calcined magnesia in milk or water; or a solution of Soap; or of any of the fixed Alkalies.

13. Tartaric Acid. Administer chalk and water.

14. Tartar Emetic. As this medicine, when in powder, resembles magnesia, it has been taken by mistake, in dangerous doses, instead of that remedy. Dilute largely with decoction of yellow Peruvian Bark, which decomposes and renders the tartar emetic inert; or, if this cannot be had, evacuate the poison quickly by encouraging the vomiting it induces with warm water, and afterwards allay the vomiting with a grain or two of solid Opium.

15. Verdigris. It ought to be generally known that pickles,

vegetable and fermentable substances, cooked in copper pans, if allowed to stand in the pan after it is taken from the fire, produce a ring of verdigris, by the action of the acid, aided by the air, on the copper with which it is in immediate contact: but if copper vessels be kept clean, and the food cooked in them be not allowed to remain in them after they are taken from the fire, no danger can result from their use. When poisoning by this means occurs, administer large doses of syrup, or of sugar and water, until the vomiting is produced by the bulk of the liquid; and afterwards give sugar or syrup in more moderate doses.

16. White Vitriol. Administer milk freely: it not only assists in sheathing the stomach against the corrosive quality of the poison, but partially decomposes it and renders it nearly inert.

CLASS II.—ACRID POISONS.

These are substances which have a more or less caustic taste, and which, on being applied to the skin, excite inflammation, terminating sometimes in vesication, and at other times in suppuration and the destruction of the cuticle. When taken into the stomach, they operate nearly in the same manner as the corrosive poisons. The substances arranged in this class belong chiefly to the vegetable kingdom; and this is an important fact; for, knowing that none of the corrosive poisons are vegetables, when the symptoms of poisoning similar to those caused by the corrosive poisons occur, and it is found that these have been excited by a vegetable substance, it may be immediately concluded that it belongs to this class of poisons. If the poison be unknown, first empty the stomach by copious draughts of mucilaginous diluents, or by the stomach-pump; after which, vinegar or lemon-juice, or any other weak acid, must be freely administered until professional aid can be procured.

a. There are no *Animal Acrid Poisons.*

b. Vegetable Acrid Poisons.—These are very numerous, but we will notice those only which are more or less likely to be taken into the stomach either by design or by mistake.

1. Bryony Root.—This is a large, fleshy, yellowish-white, spindle-shaped root, with a sweetish, but at the same time acrid and bitter taste. When it is known that Bryony root has been swallowed as a poison, excite vomiting by irritating the throat with the finger or a feather, and by administering large draughts of tepid water; after which, give milk, with from a grain to two grains of opium, once in two hours, until the violent colic pains are abated.

2. Coloquintida; *Bitter Apple.* Much danger has been often incurred by overdoses of this substance being ordered by empirics and pretenders to specifics; but it has seldom caused death. First evacuate the stomach, in the manner already described, and then administer milk and oil.

3. Gamboge. This vegetable production, being used as a pigment in water-colour drawings, has often been swallowed in dangerous doses by children, and has produced fatal effects from the violence of the vomiting and purging which it causes. Administer milk and other demulcent diluents, with a grain of opium at short intervals.

4. White Hellebore Root. This root excites violent vomiting and purgings, with bloody evacuations which soon prove fatal, if proper measures to counteract its influence be not immediately taken.

Evacuate the stomach with copious draughts of demulcent fluids, and sheathe the bowels with clysters of starch and other emollients; then administer freely acidulous drinks, coffee, and camphor in doses of from six to ten grains. Professional aid cannot be too early procured when this poison has been taken.

5. Black and Fetid Hellebore. The symptoms resemble those caused by Bryony-root, and require to be treated in the same manner.

6. Sow Bread; *Cyclamen*. The root of this plant, which is a flattened, circular tuber, produces effects similar to those of white Hellebore when it is swallowed; and, consequently, cases of poisoning by it require to be treated in the same manner as those by white Hellebore.

7. Spurge. The seed-vessels of this family of plants are what is termed tricoccous, that is, composed of three capsules or distinct cells united back to back on a common footstalk. Those of the species indigenous in Great Britain bear a distant resemblance to capers, and have been occasionally eaten by the ignorant and children, in quantities which have proved fatal. The symptoms are great heat in the stomach, vomiting, violent purging with bloody stools. When poisoning from these seed-vessels, or from the Euphorbia of the shops, occurs, first evacuate the stomach by large draughts of tepid water; and then give repeatedly olive oil and milk, sheathing the lower bowels with starch clysters.

In the same manner are to be treated cases of poisoning by *Arum*, or *Cuckoo pint*, the beautiful red berries of which, as they appear in autumn, sometimes allure children to eat the root; *Croton Oil*, when overdosed; the *Meadow Anemone*; the *Meadow Narcissus*; the different species of *Ranunculus* or *Buttercups*; and *Aconite*, or *Wolfsbane:* but in all these cases, we must again repeat it, the best professional assistance should be procured as soon as possible.

c. Mineral Acrid Poisons.—These are few when compared with those belonging to the class of corrosive poisons. We shall notice only one.

1. Nitre; *Saltpetre*. This excellent medicine has occasionally been taken, by mistake, instead of Glauber salts, in doses of an ounce or more. It produces vomiting, purging with bloody stools, excruciating gripings, cold sweats; and if it do not terminate in death, the future life of the patient is likely to be rendered wretched, and he dies paralytic. The instances of poisoning by Nitre demonstrate the propriety, or rather necessity, of tasting medicines before swallowing them, as it would be very unlikely, under such precautions, to mistake Nitre for Glauber salts; the taste of the former being cool, bitterish and penetrating—that of the latter strongly saline and nauseous.

When Nitre has been taken in such large doses, dilute freely with milk and bland diluents.

CLASS III.—SEDATIVE AND NARCOTIC POISONS.

The substances comprehended in this class of poisons, when taken into the stomach, or applied to the body in such a manner as to be rapidly absorbed, cause drowsiness, stupor, paralysis or apoplexy, convulsions, and death when the dose is sufficiently large. They belong, almost exclusively, to the vegetable kingdom.

a. Vegetable Sedative and Narcotic Poisons.

1. CAMPHOR. This excellent medicine has occasionally been swallowed in doses so large as to cause very violent excitement of the brain and nervous system; such as vertigo, difficult breathing, fainting, cold sweats, convulsions, and, in some instances, death. When it is known or suspected that these symptoms have resulted from the administration of Camphor, give wine in moderate quantities, with ten or fifteen drops of laudanum, at short intervals, until professional aid be procured or the symptoms abate.

2. HEMLOCK; *Conium maculatum.* When this poison has been swallowed, either in the recent state or in the form of extract or of tincture, so as to produce high delirium or frenzy, or stupor, dilatation of the pupils, and convulsions, which frequently terminate in death, the stomach should be first evacuated by the stomach-pump, if it be at hand, or by a scruple of white Vitriol, and acidulous fluids afterwards freely administered.

3. HENBANE. Poisoning by this plant, either in its recent state or prepared for medicinal use, must be counteracted in the same manner as a case of poisoning by Hemlock.

4. LAUREL WATER. This acts as a direct sedative, and destroys life without convulsions or any of the other symptoms which those substances which are regarded as simple narcotics, produce. It is distinguished by the strong odour of bitter almonds; and, in cases of poisoning by it, whatever steps are taken must be prompt. Brandy, containing in each glass from fifteen to thirty drops of solution of Ammonia, or a teaspoonful or two of Hartshorn, should be administered, at short intervals, until the habit is roused, and the influence of the poison is overcome.

5. OPIUM. As this medicine, in all its forms of preparation, is the poison most commonly had recourse to by the suicide, there is reason for suspecting that it has been swallowed when the following symptoms occur: drowsiness, followed by delirium, pallidness of countenance, sighing, deep and snorting breathing, cold sweats, and apoplexy. The first object in the treatment of such a case is to dislodge the poison still remaining in the stomach, either by means of the stomach-pump, if that valuable instrument can be procured, or by the administration of an emetic consisting of a scruple of white vitriol, or from five to eight grains of blue vitriol; and by irritating the upper part of the gullet and the throat by the finger introduced into the mouth, or with a feather. If no professional aid can be procured, even after the stomach is emptied, then give freely acidulous fluids, with strong coffee and cordials. The subsequent drowsiness should be averted by rousing continually the attention of the patient; by obliging him to walk about; and, when it can be done, by immersing him in a tepid bath.

6. PRUSSIC ACID. When this poison is taken in a large dose, death almost instantaneously follows; but when the quantity is more moderate, it produces the same sedative effects as laurel-water, and is to be counteracted by the same means.

7. STRAMONIUM, or *Thorn Apple*, acts nearly in the same manner as Opium; and, consequently, cases of poisoning by this agent are to be treated in the same manner as those by Opium.

8. STRONG SCENTED LETTUCE produces the same effects as Opium; and persons poisoned by it are, therefore, to be treated in the same manner as those by opium.

9. TOBACCO. The symptoms which lead to the suspicion of poisoning by this substance are, severe nausea, vomiting, and other sensations of drunkenness, great sinking of the strength, cold sweats and convulsions. If little time has elapsed from the swallowing the poison, clear the stomach by two or three grains of Tartar-emetic; but, if some time has passed, administer purgatives, and afterwards acidulous drinks, with brandy, camphor, and other cordials.

b. Mineral Sedative and Narcotic Poisons.

1. CARBONIC ACID GAS. The utmost danger often arises from this gas being extricated by burning charcoal in close rooms; and from the gas accumulating in cellars and other places, which have been long kept closed, and into which individuals imprudently enter immediately after they are opened. No person ought to enter a cellar, pit, well, or other place in which this gas can accumulate, without carrying with them a lighted candle, the going out of which should be the signal for instant retreat.

When suspended animation occurs from this gas, remove the body into the open air; and, while friction is applied over the chest, let the lungs be inflated by means of a pair of bellows, closing and opening the nostrils and mouth alternately, and pressing on the chest after each inflation, so as to imitate, as nearly as possible, the action of breathing. The influence of hydrogen gas on the body is to be counteracted in the same manner.

CLASS IV.—ACRO-NARCOTIC POISONS.

These are substances that inflame, to a certain degree, the surfaces to which they are applied, and, at the same time, produce the stupifying and sedative effects of the narcotic poisons. They are almost all *vegetable* productions.

a. Vegetable Acro-narcotic Poisons.

1. COCCULUS INDICUS. The symptoms produced by this poison closely resemble those of intoxication. Vomit and purge freely.

2. DEADLY NIGHTSHADE; *Belladonna*. The beautiful appearance and sweet taste of the berries of the deadly nightshade often allure children to eat them. The symptoms resemble those of intoxication, with high delirium, accompanied with laughter; an effect which is beautifully alluded to by our immortal dramatist in the following lines:—

"Or have we eaten of the insane root,
That takes the reason prisoner."—MACBETH.

It also causes such a state of paralysis of the stomach, that vo-

miting can scarcely be excited by the most powerful emetics. Administer vinegar and acidulous drinks, which often enable the emetics to operate; and continue the use of the acids until all the symptoms disappear.

3. Elaterium. This is not likely to be used as a poison; but it may be overdosed in the hands of the ignorant. The chief symptoms are violent purging of watery stools, followed by sudden sinkings and excessive debility. Support the strength by cordials and opium in doses of a grain, repeated at short intervals; and exhibit clysters of starch, with from forty to sixty drops of laudanum in each clyster.

4. Foxglove; *Digitalis.* An overdose of this medicine, in any form of preparation, produces sickness, vomiting, vertigo, indistinct vision, cold sweats, delirium, and fainting; and may cause death. To counteract these effects, administer brandy and cordials.

5. Fool's Parsley: *Æthusa Cynapium.* This plant is readily distinguished from real Parsley by three, long, linear leaflets, which are pendent on one side of the base of each umbellule, or umbrella-like expansion of the footstalks of the flowers, and which are not present in Parsley. When eaten, Fool's-Parsley produces heat of throat, thirst, vomiting, a small frequent pulse, headach, vertigo, and delirium. It must be evacuated from the stomach by large draughts of demulcent fluids, until professional aid be procured.

6. Funguses and Poisonous Mushrooms. The general result of these funguses on the animal economy is pain of the stomach, nausea and vomiting, cholic and purging, cramp of the lower extremities, with vertigo, delirium, and convulsions. Evacuate the stomach by emetics and purgatives, or by a combination of the two; as for example, a scruple of powder of ipecacuanha, and two ounces of Glauber salts; after which give acidulous drinks with brandy, or a teaspoonful of Æther at short intervals; and lastly Peruvian Bark. Ammonia and Hartshorn are hurtful.

It would be impossible within our limits to give a detailed account of every poisonous Fungus or Mushroom; but, as a general guide, we offer the following rules for indicating those of a suspicious character. All Funguses which grow in damp, shady places, which have a porous, moist, dirty surface, a disagreeable aspect, a fœtid odour, a gaudy colour, have soft, open, and bulbous stalks, and which grow very rapidly, and corrupt as quickly, are to be suspected.

7. Meadow Saffron; *Colchicum.* Overdoses of the remedy and its preparation produce violent purgings, often with bloody stools, sinking of the pulse, and cold sweats. Evacuate the stomach by copious draughts of demulcent fluids; then give from six to ten grains of Ammonia, or a tea-spoonful, or two tea-spoonfuls of Hartshorn in a glass of brandy at short intervals.

8. Nux Vomica; *Ratsbane.* The symptoms of poisoning by Ratsbane are those of inebriety, vertigo, rigidity of the extremities, extreme difficulty of breathing, and suffocation. Evacuate the stomach and bowels; and afterwards dilute freely with acidulous fluids.

b. Mineral Acro-narcotic poisons.

1. WHITE LEAD; *Carbonate of lead.* The effects of this poison are felt chiefly by painters and workers in white lead, who do not wash their hands before eating their meals. It causes obstinate costiveness and violent cholic, with tremors and palsy of the legs and arms. The same symptoms are produced by cider, wine, and other liquors, into which *Sugar of Lead* and *Litharge* have been introduced to remove acidity. Until professional aid can be obtained, administer an ounce of castor oil, with forty drops of Laudanum; and let the patient be put into a warm bath.

CLASS V.—SEPTIC OR PUTRESCENT POISONS.

This class of poisons comprehends those substances which, on being taken into the stomach, or introduced by any means into the system, produce general debility, faintings, and a breaking down or putrescent state of the animal fluids and solids, without much effect on the intellectual faculties. They are almost all of an animal nature.

1. VENOM of SERPENTS, such as the *Viper*, the *Rattlesnake*, and *Cobra de Capello.* The symptoms resulting from the bite of all venomous snakes are nearly the same:—pain in the bitten part, extending towards the heart; stupor, cold sweats, pallor and lividity of countenance, and gangrene of the bitten part, are indications of such venomous bites. Put a ligature upon the limb which has been bitten, between the wound and the trunk of the body, and apply a wine-glass, exhausted by burning a little spirit within it, as a cupping-glass over the part, or let the wound be sucked by a person whose lips and tongue are not chapped, until professional aid can be procured. Animal poisons of this description are innocuous when taken into the stomach, although their action is so powerful, and often fatal, when they are introduced into the habit by a wound, or any other method of innoculation. If the lips or the tongue of a person who sucks a poisoned wound be chapped, the system is innoculated in the same manner as if it were inserted by a lancet, or by a bite, under the skin.

2. STINGS of BEES, WASPS, and OTHER INSECTS. These are seldom fatal; but the pain which they excite is almost insupportable in some habits. Let the affected parts be bathed with tepid spirit of Mindererus.

3. FISH POISON. In this country poisoning from this cause seldom occurs, except when the Mussel or the Oyster is in an unhealthy state, or beginning to putrefy. The symptoms are a sensation of weight at the stomach, nausea, thirst, vertigo, itching over the skin, hiccough and faintings, with cold, clammy perspirations. Evacuate the stomach by a powerful emetic and the bowels by a purge; after which, administer copious draughts of acidulated fluids, with from twenty to forty drops of Æther at short intervals.

4. BITE of a MAD DOG. Tie a ligature above the wound, and apply a wine-glass or a cupping-glass over it, until a surgeon can be procured to cut out the bitten part. As every thing depends on the complete extirpation of the part, a good surgeon must be employed. When the disease appears, if the medical attendant has

not previously seen a case of the disease, which may happen to the most skilful practitioners, request him to cup the patient over the course of the spine, and immediately administer Prussic acid.

In concluding these brief instructions, we conceive it to be imperative upon us to caution persons from hastily taking up the idea that an individual is suffering under the influence of poison, without consulting a physician or a surgeon if practicable. The symptoms of *cholera morbus, diarrhœa, malignant fever*, and several other diseases, may be mistaken by the ignorant and inexperienced for those of poison; and, thence, the necessity of immediately procuring that assistance, without which, in either case, not only is future health endangered, but life itself placed in the utmost peril.

XX. FARMING ACCOUNTS.

The method of keeping Farming Accounts should be simple, in order to be generally useful. Some few individuals amongst the farmers may be competent, by their superior instruction, to manage a very detailed system, but far the largest portion amongst them have neither knowledge nor leisure sufficient to attend to a very minute division of departments in their accounts.

We recommend, in the first place, a general daily entry in a book, of receipts on one side, and payments on the other; and afterwards, when the farmer has time, he should digest them under the following heads:—

Annual payments to farm servants. Weekly payments for labour including work done by the piece or quantity, distinguishing the thrashing of wheat, barley, &c.

A separate head for labour in reaping, mowing, and hoeing.

A separate head for fencing, making hedges and ditches.

Tradesmen's bills; as blacksmiths, wheelwrights, &c.

Repairs of buildings of all descriptions belonging to farm.

Taxes, assessments, poors'-rate, rates of all kinds, tithes, rent.

Seed of all sorts bought for sowing.

Hay, corn, bought for consumption on farm.

Dead Stock bought.

Live stock bought.

Payments for manure; such as ashes, lime, &c.

Extra expenses; such as allowances to carters for long carriage, turnpikes, beer, and a number of small outgoings which constantly occur.

Wheat crop; number of acres reaped, how much winnowed, sold, consumed in family, sown, and how otherwise disposed of.

Barley, ditto.

Oats, ditto.

Beans, peas, tares, and hay sold; similar produce of pulse under one head, ditto.

Number of sheep on farm; sheep, lambs, and wool sold, consumed, or otherwise disposed of.

Pigs, ditto.

Other cattle, according to the nature of the farm, ditto.

Butter, cheese, milk, and calves, ditto.

Poultry, ditto.

Extra profits on small articles sold; for carriage, when hired, &c.

If any wood on the estate, a head must be added.

This method of keeping accounts is framed for the use of the common corn farms. Grazing farms, lands cultivated for special objects, or where the cultivation is not entirely carried on for the customary purposes, will require that some of the heads should be omitted, and occasionally additional heads must be supplied. These amendments will readily be suggested when the necessity occurs. When the farmer has practised this plan for three or four years, he will easily make such further divisions as he may find desirable; but the mode first tried must be simple and very intelligible. He will find out, from thus dividing the heads of expense, the departments where the weight of the outgoings mainly press, and may curtail and economize in such as may admit of some saving. Very few farmers keep any account: at the end of the year they make a gross computation of the outgoings and receipts, and conjecture, from loose materials, that they have either more or less capital and stock than when they began; but they have no accurate knowledge of the value of the times of the produce taken separately.

A farmer's business, like other trades, is subject to fluctuations by profit and loss: he must not be elevated by success in one or two years, nor depressed by the occurrence of one or two of what he calls *bad times*. The average of several years must determine his gain or loss. In Scotland, the farmers take long leases; their gains do not commence sometimes for the first nine or ten years.

It is almost useless to add any thing on the necessity of keeping accounts; without them the farmer can have no real knowledge of the state of his affairs, and, consequently, no just means of knowing best how to manage them; he will, without them, be constantly liable to error and misconception as to the value of what he has, the real amount of his gains, or the certain extent of his losses. It may seem to many that this observation is uncalled for; but to others (and they are no small proportion of farmers) who read this, they will no doubt feel that they are in many things ignorant of any thing like an accurate knowledge either of their profit or loss on any particular head.

XXI. ON COMMERCIAL ASSURANCES.

ASSURANCE, or Insurance, (which has the same meaning,) is a term in commerce, expressing the condition of being individually *assured* (made sure) against the pecuniary injuries which result from the chances of human events—such as the death of the insured, and the consequent loss of his industry to his family,—the perishing or damage of goods by the accidents of the sea, or of capture in time of war,—the destruction of property by fire.

The ancients made a deity of Chance, to express their notion of the influence upon the affairs of men of some unknown, incalculable, capricious cause, appearing to defy every exertion of foresight and prudence. They acquired this belief, which many unthinking people still entertain, from the observation of particular and detached events, instead of comparing and arranging a large number of events that are submitted to the same physical laws. Such an investigation will, at once, indicate that, with reference to any extensive series of facts of a similar nature, the succession of any one particular fact is invariably the same. Thus, for instance, the probabilities of throwing any particular number with a die or dice, are mathematically certain; and if the experiment were made for a sufficient succession of throws to afford an average, the practical results would exactly correspond with the theoretical. These calculations, (which form the doctrine of chances,) as applied to commercial purposes, have produced the most beneficial results to individual property and public wealth; and they, moreover, afford that calmness and stability of mind which constitutes the most salutary difference between commercial adventure and gaming. The modes in which the system of assurances is principally applied, may be briefly described.

The duration of human life, over which the most healthy and the most temperate man has no certain control, must necessarily appear a matter of chance when individually considered. If, however, we regard the human species in masses, we are enabled to ascertain, with considerable precision, the average of life; and thus to apply a system of insurance, not to life itself, for that is, of course, dependent upon a higher power than man, but against the injurious consequences which proceed from the death of those upon whom the support of others depends. In taking ten millions of people, for instance, and having ascertained the ages to which each of the ten millions has arrived previous to his death, by dividing the total of these ages by the number of individuals, we establish the average term of the duration of life. This term varies in particular countries and under different states of society; but it is invariably found to increase with the increase of the means of comfort. The average term of life in Great Britain is thus longer, by almost one-third, than it was during the last century. The rate of mortality in 1780, was one in forty; in 1821, it was one in fifty-eight. Vaccination, and the great improvements in medical science, have, doubtless,

contributed to this result. To establish data for determining this mean length of life has been an important object with statesmen, of late years, and forms a great branch of the science of statistics. The tables which have been constructed, upon the experience of most European nations, enable us, not only to determine the average term of life, but the probabilities of the number of years a person, at any particular age, has to live. Upon these calculations are founded the system of life-assurances and annuities; and the various corporations which grant life-assurances are enabled to conduct their operations upon a just and solid foundation, in the degree that they form their estimates upon averages equally supported by science and experience. To all persons where income is not permanent, and who are unable to lay by a sufficiency to prevent the lamentable consequences to their children of an inadequate provision, the principle of life-assurance offers a safe and effectual remedy against the chances of mortality, which no prudent father should forego, if the annual sacrifice is at all within his ability.

The extensive application of the system of assurances on shipping, in this country, has produced the most salutary effects upon the prosperity of our commerce, and upon the mercantile character. Maritime assurances are founded upon the same principle as the assurances upon lives. Upon an average of years, it is found that a certain number of vessels are wrecked in making a particular voyage. The extent of the property which an individual merchant commits to the various chances of the sea, renders it necessary that he should be protected against the ruin which would follow the loss of his cargo. By a convention between a number of merchants to contribute to pay the losses of shipwrecks mutually, as if they were a trading company, the individual ruin is avoided by the distribution of the loss. Thus, if the average shows that one ship is lost in a hundred in a certain voyage, as from London to Madeira, the aggregate loss is one per cent.; and by the payment of one per cent., (and a trifle more to cover the trouble and expense of effecting the insurance) by the individual who desires to be protected, the chances of a terrible ruin are averted by a small certain advance. This is the principle of *mutual* assurances. Those who subscribe the policy of insurance are called underwriters;—because they write their names, and their individual engagement for a portion of the insurance, under the bond (or policy) by which the vessel or cargo is insured.

Assurances against loss by fire are the most common in this country, as they are the most useful. The proportion of fires throughout the kingdom is found to bear a constant relation to the number of houses. The amount of the property thus destroyed is paid to the insurers, by the quota of each person insured.

Independently of the advantages which individuals derive from the system of assurances, the amount of public wealth is sensibly increased by its operation. In the *certainty* of property there is a very remarkable augmentation of value. In comparing two advantages, one of which should be permanent, the other uncertain, in its duration, the capability of undisturbed enjoyment at once de-

termines the measure of good. The possession of property which is placed beyond destruction or injury from the effects of accident, contributes essentially to the happiness of life, and to the moral dignity of individual character. The commercial proprietor, by the system of assurances, gives to his property the same stability as that possessed by the landed or funded proprietor; and he is thus enabled to preserve that equanimity, which in all human affairs invariably results from building upon the reasonable certainties of just calculations, rather than trusting for an escape from possible evils, to the mere casualties of fortune. The man who risks the loss of his ship by tempests, or of his stock by fire, because the chances are against such destruction, when he may put himself entirely above the chance by a very small contribution, has no claim to the character of a wise or prudent member of a community, in which judgment and prudence are more than ever necessary to provide for the wants of the passing day, and to guard against the accidents of evil fortune.

We subjoin a Table, upon which the value of annuities has been ordinarily estimated. In a future "Companion," we shall give some calculations founded upon more accurate data of the average duration of human life.

A TABLE of the VALUE of an ANNUITY of 100*l.*, on a single Life, from Birth to 90 Years Old.

Age.	Value. £.	s.	Age.	Value. £.	s.	Age.	Value. £.	s.	Age.	Value. £.	s.
Birth.	1032	14	23	1568	0	46	1208	18	69	664	14
1	1346	10	24	1556	0	47	1189	0	70	636	2
2	1563	6	25	1543	16	48	1168	10	71	607	10
3	1646	4	26	1531	4	49	1147	10	72	579	0
4	1701	0	27	1518	8	50	1126	8	73	550	14
5	1724	16	28	1505	6	51	1105	14	74	523	0
6	1748	4	29	1491	16	52	1084	18	75	496	4
7	1761	2	30	1478	2	53	1063	14	76	471	0
8	1766	4	31	1463	18	54	1042	2	77	445	14
9	1762	10	32	1449	10	55	1020	2	78	419	14
10	1752	6	33	1434	14	56	997	14	79	392	2
11	1739	6	34	1419	10	57	974	18	80	364	6
12	1725	2	35	1403	18	58	951	12	81	337	14
13	1710	6	36	1388	0	59	928	0	82	312	4
14	1695	0	37	1371	12	60	903	18	83	288	14
15	1679	2	38	1354	16	61	879	10	84	270	16
16	1662	10	39	1337	10	62	854	14	85	254	6
17	1646	4	40	1319	14	63	829	2	86	239	6
18	1630	18	41	1301	16	64	803	0	87	225	2
19	1616	14	42	1283	16	65	776	2	88	213	2
20	1603	6	43	1265	14	66	748	16	89	196	14
21	1591	4	44	1247	4	67	721	2	90	173	16
22	1579	14	45	1228	6	68	693	0			

PART IV.

THE LEGISLATION, STATISTICS, PUBLIC IMPROVEMENTS, AND INVENTIONS, OF 1827.

XXII. ABSTRACT OF IMPORTANT PUBLIC ACTS

[7 & 8 Geo. IV.—1826, 1827.]

1.—BENEFIT OF CLERGY, &c. REPEALED.

[7 & 8 Geo. IV. c. 27.—Passed 21st June, 1827.]

An Act for repealing various Statutes in England, relative to the Benefit of Clergy, and to Larceny, and other Offences connected therewith, and to malicious Injuries to Property, and to Remedies against the Hundred.

1. In order that the provisions contained in the various statutes now in force in England relative to the benefit of clergy, larceny, stealing, burglary, robbery, and threats for the purpose of robbery or extortion, might be amended and consolidated into one act, those statutes are repealed; and also, with the same view, are repealed the various statutes relative to malicious injuries to property, and to remedies against the hundred.

2.—FURTHER IMPROVEMENT OF THE CRIMINAL LAW.

[7 & 8 Geo. IV. c. 28.—Passed 21st June, 1827.]

An Act for further Improving the Administration of Justice in Criminal Cases in England.

1. Any person pleading "Not Guilty," shall, without any further form, be deemed to have put himself upon the country for trial; and the court shall, in the usual manner, order a jury for the trial of such person accordingly.

2. If any person will not answer directly to the indictment or information against him, the court may, if it think fit, order the proper officer to enter a plea of "Not Guilty" on behalf of such person.

3. If any person shall challenge peremptorily a greater number of men returned to be of the jury than such person is entitled to challenge by law, every peremptory challenge beyond the lawful number to be entirely void, and the trial to proceed as if no such challenge had been made.

6. Benefit of Clergy, with respect to persons convicted of felony, shall be abolished.

7. No person convicted of felony shall suffer death, unless it be for some felony which was excluded from the benefit of clergy before or on the first day of the present session of parliament, or which has been or shall be made punishable with death by some statute passed after that day.

8. Every person convicted of felony, not punishable with death, shall be punished in the manner prescribed by the statute or statutes specially relating to such felony; and every person convicted of felony, for which no punishment has been or may hereafter be specially provided, shall be deemed to be punishable under this act, and be liable, at the discretion of the court, to be transported beyond the seas for the term of seven years, or to be imprisoned for any term not exceeding two years; and, if a male, to be once, twice, or thrice publicly or privately whipped (if the court think fit) in addition to the imprisonment.

9. Where any person shall be convicted of an offence punishable under this act, for which imprisonment may be awarded, the court shall sentence the offender to be imprisoned, or to be imprisoned and kept to hard labour, in the common goal; and also direct that the offender be kept in solitary confinement for the whole or any portion of the imprisonment, or of the imprisonment with hard labour, as to the court in its discretion shall seem meet.

10. Wherever sentence shall be passed for felony on a person already

imprisoned under sentence for another crime, the court shall award imprisonment for the subsequent offence, to commence at the expiration of the imprisonment to which such person has been previously sentenced; and where the offender shall be already under sentence of imprisonment or of transportation, the court (if empowered to pass sentence of transportation) may award such sentence for the subsequent offence, to commence at the expiration of the imprisonment or transportation to which the offender shall have been previously sentenced, although the aggregate term of imprisonment or transportation respectively may exceed the term for which either of those punishments could be otherwise awarded.

11. If any person shall be convicted of any felony (not punishable with death,) committed after a previous conviction for felony, such person shall, on the subsequent conviction, be liable (at the discretion of the court) to be transported for life, or for any term not less than seven years, or to be imprisoned for any term not exceeding four years; and, if a male, to be once, twice, or thrice publicly or privately whipped (at the discretion of the court) in addition to the imprisonment.

12. All offences prosecuted in the high court of admiralty of England, shall, upon every first and subsequent conviction, be subject to the same punishments, whether of death or otherwise, as if the offences had been committed upon the land.

13. Where his majesty shall grant to an offender either a free or a conditional pardon, the discharge of the offender out of custody in the event of a free pardon, and the performance of the condition in the event of a conditional pardon, shall have the effect of a pardon as to the felony for which such pardon may be granted; but no free or conditional pardon, nor the performance of the condition thereof, shall prevent or mitigate the punishment to which the offender might otherwise be lawfully sentenced on a subsequent conviction for any felony committed after the granting of any such pardon.

15 & 16. This act to commence and take effect on the 1st of July, 1827; but not to extend to Scotland or Ireland.

3.—AMENDMENT OF THE LARCENY LAWS.

[7 & 8 Geo. IV. c. 29.—Passed 21st June, 1827.]

An act for consolidating and amending the Laws in England relative to Larceny and other Offences connected therewith.

1. The various statutes now in force in England relative to larceny and other offences of stealing, and to burglary, robbery, and threats for the purpose of robbery or of extortion, and to embezzlement, false pretences, and the receipt of stolen property, are by an act of the present session (1827) repealed from and after the 1st of June, 1827, *except as to offences committed before or upon that day.* This act commenced July 1, 1827.

2. The distinction between grand and petty larceny shall be abolished; and every larceny (whatever be the value of the property stolen) shall be deemed to be of the same nature, and be subject to the same incidents as grand larceny was before the commencement of this act; and every court, whose power as to the trial of larceny was, before the commencement of this act, limited to petty larceny, shall have power to try every case of larceny, the punishment of which cannot exceed the punishment hereinafter mentioned for simple larceny, and also to try all accessories to the same.

3. Every person convicted of simple larceny (except in the cases hereinafter provided for) shall be liable to be transported beyond the seas for seven years, or to be imprisoned for any term not exceeding two years; and, if a male, to be once, twice, or thrice publicly or privately whipped (if the court think fit) in addition to the imprisonment.

4. Where any person shall be convicted of any felony or misdemeanor*, punishable under this act, for which imprisonment may be awarded, the court may sentence the offender to be imprisoned, or to be imprisoned and kept to hard labour, in the common gaol; and may also direct that the offender be kept in solitary confinement for the whole or any portion of the imprisonment.

5. If any person shall steal any tally, order, or other security, entitling or evidencing the title of any person or body corporate to any interest in any public stock or fund of Great Britain or Ireland, or of any foreign state, or in any fund of a body corporate, company, or society, or to a deposit in a savings bank; or shall steal any debenture, deed, bill, bond, note, warrant, or other security for money, or for the payment of money, whether of this kingdom or of any foreign state; or shall steal any warrant or order for the delivery or transfer of goods or valuable thing; every such offender shall be deemed guilty of felony, and be punished in the same manner as if he had stolen any chattel of like value. Each of the several documents above enumerated, shall, throughout this act, be deemed for every purpose to be included under and denoted by the words "valuable security."

6. If any person shall rob any other person of any chattel, money, or valuable security, every such offender, being convicted thereof, shall suffer death as a felon; and if any such person shall steal any such property from the person of another, or shall assault any other person with an intent to rob him, or shall, with menaces or by force, demand any such property from him, with intent to steal the same, every such offender to be guilty of felony, and, being convicted thereof, be liable to be transported beyond the seas for life, or for any term not less than seven years, or to be imprisoned for any term not exceeding four years, and, if a male, to be once, twice, or thrice publicly or privately whipped (if the court think fit) in addition to the imprisonment.

7. If any person shall accuse or threaten any other person of any infamous crime (hereinafter defined) with a view or intent to extort or gain from him, and shall, by such accusation or threat, extort or gain from him any chattel, money, or valuable security, every such offender to be deemed guilty of robbery, and be indicted and punished accordingly.

8. If any person shall knowingly send or deliver any letter or writing, demanding of any other person (without reasonable or probable cause) any chattel, money, or valuable security; or shall accuse or threaten to accuse, or shall knowingly send or deliver any letter or writing, accusing, or threatening to accuse, any person of any crime punishable with death, transportation, or pillory, or of any assault with intent to commit a rape, or of an attempt or endeavour to commit a rape, or of any infamous crime, with a view to extort or gain any chattel, money, &c. every such offender to be guilty of felony, and be liable (at the discretion of the court) to be transported beyond the seas for life, or for any term not less than seven years, or to be imprisoned for any term not exceeding four years, and, if a male, to be once, twice, or thrice publicly or privately whipped (if the court think fit) in addition to the imprisonment.

9. This section defines what shall be an infamous crime.

10. If any person shall break and enter any church or chapel, and steal *therein* any chattel, or having stolen any chattel *therein*, shall break out of the same, every such offender to suffer death as a felon.

11. Every person convicted of burglary shall suffer death as a felon; and if any person shall enter the dwelling-house of another with an intent to commit felony, or being in such dwelling-house shall commit

* The great practical distinction between felony and misdemeanor, as the law now stands, is, that on the trial of misdemeanors the accused is allowed the benefit of counsel, to address the jury on his behalf; on the trial of a felony, the counsel for the prosecution may address the jury, but the counsel for the prisoner is confined to the examination of witnesses, and to the arguing of points of law before the judge.

felony, and shall, in either case, break out of the same in the night time, the offender to be deemed guilty of burglary.

12. If any person shall break and enter any dwelling-house, and steal therein any chattel, money, or valuable security to any value whatever, or shall steal any property of any value whatever, any person therein being put in fear; or shall steal any chattel, money, or valuable security to the value in the whole of 5*l.* or more, every offender to suffer death as a felon.

13. No building shall be deemed to be part of a dwelling-house for the purpose of burglary, or for any of the before-mentioned purposes, unless there be a communication between the building and the dwelling-house, either immediate or by means of a covered and inclosed passage.

14. If any person shall break and enter any building (such building being within the curtilage* of a dwelling-house, and occupied therewith, but not being part thereof according to the previous provision), and steal *therein* any chattel, money, or valuable security, such offender, being convicted thereof either upon an indictment for the same, or for burglary, housebreaking, or stealing to the value of 5*l.* in a dwelling-house, to be liable (at the discretion of the court) to be transported beyond the seas for life, or for any term not less than seven years, or to be imprisoned for any term not exceeding four years, and, if a male, to be once, twice, or thrice publicly or privately whipped (if the court think fit) in addition to the imprisonment.

15. If any person shall break and enter a shop, warehouse, or counting-house, and steal *therein* any chattel, money, or valuable security, such offender to be liable to any of the punishments that the court may award as hereinbefore last mentioned.

16. If any person shall steal to the value of 10*s.* any goods or article of silk, woollen, linen, or cotton, or of any one or more of those materials mixed with each other, or with any other material, whilst laid, placed, or exposed, during any stage or process of manufacture, in any building, field, or other place, such offender to be liable to any of the punishments hereinbefore last mentioned.

17. If any person shall steal any goods or merchandise *in* any vessel, barge, or boat, in any port of entry or discharge, or upon any navigable river or canal, or in any creek belonging to or communicating with such port, river, or canal, or from any dock, wharf, or quay, adjacent to such port, &c. the offender to be liable to any of the punishments hereinbefore last mentioned.

18. If any person shall plunder or steal any part of a ship or vessel that shall be in distress, or wrecked, stranded, or cast on shore, or any goods, merchandise, or articles of any kind belonging to such ship or vessel, such offender shall suffer death. When articles of small value are stranded or cast on shore, and are stolen without circumstances of cruelty or violence, the offender may be prosecuted and punished as for a simple larceny. In either case, the offender may be indicted and tried either in the county in which the offence has been committed, or in any adjoining county.

19. If any article of any kind belonging to a ship or vessel in distress, or wrecked, or cast on shore, shall, by virtue of a search-warrant, be found in possession, or on the premises of any person with his knowledge, and he cannot satisfactorily account for the same, such article shall be forthwith delivered to the rightful owner, and the offender shall forfeit (over and above the value of the articles) any sum not exceeding 20*l.*

20. If any person shall offer or expose for sale any article that has been taken, or reasonably suspected to have been taken, from a ship or vessel in distress, &c., the person to whom the same has been offered, or

* Curtilage, outhouse, &c., inclosed within the same common fence as a dwelling-house.—Blackstone.

any officer of the customs or excise, or peace-officer, may seize and carry the same to some justice of the peace. If the person who shall have offered or exposed the article for sale (being duly summoned) shall not appear and satisfactorily account for the possession of the same, it shall be forthwith delivered to the rightful owner, upon payment of a reasonable reward (in the discretion of the justice) to the person who seized the same, and the offender shall forfeit and pay, over and above the value of the article, any sum not exceeding 20*l.*

21. If any person shall steal, or, for any fraudulent purpose, take from its place of deposit, or from the person having the custody thereof, or shall maliciously obliterate or destroy any document of or belonging to a court of record or equity, relating to any matter begun, depending, or terminated, the offender to be deemed guilty of a misdemeanor, and be liable to be transported for seven years, or such other punishment, by fine or imprisonment, or by both, as the court may award. It shall not be necessary to allege, in the indictment, that the document is the property of any person, or that the same is of any value.

22. If any person shall, either during the life of the testator or testatrix, or after his or her death, steal, or for any fraudulent purpose destroy or conceal any will, codicil, or other testamentary paper, whether it relate to real or personal estate, or to both, such offender shall be guilty of a misdemeanor, and be liable to any of the punishments last mentioned. It shall not be necessary to allege in the indictment that the will &c. is the property of any person, or that the same is of any value.

23. If any person shall steal any paper or parchment, written or printed, or partly written and partly printed, (being evidence of the title to a real estate,) such offender shall be guilty of a misdemeanor, and be liable to any of the punishments last mentioned. It shall be sufficient to allege in the indictment, that the thing stolen is evidence of the title of the person having a present interest in the real estate to which the same relates, and it shall not be necessary to allege the thing stolen to be of any value.

24. Nothing in this act contained relating to either of the misdemeanors, nor any proceeding, conviction, or judgment to be had or taken thereupon, shall prevent or impeach any remedy at law or equity which an aggrieved party might or would have had if this act had not been passed; but the conviction of the offender shall not be received in evidence in any action at law or equity. No person to be liable to be convicted of either of the misdemeanors for any act done by him, if he, at any time, previously to his being indicted for such offence, shall have disclosed such act, on oath, in consequence of a compulsory process of a court of law or equity, or in an examination before commissioners of bankrupt.

25. If any person shall steal any horse, mare, gelding, colt, filly, bull, ox, cow, heifer, calf, ram, ewe, sheep, or lamb, or shall wilfully kill any of such cattle, with intent to steal the whole or part thereof, such offender to be guilty of felony, and shall suffer death as a felon.

26. If any person shall wilfully course, hunt, snare, or carry away, or kill, or wound, or attempt to kill or wound, any deer, kept or being in the inclosed part of a forest, chace, or purlieu, or in an inclosed land where deer are usually kept, such offender to be guilty of felony, and be liable to be punished as for simple larceny. If any person shall wilfully course, hunt, snare, or carry away, or kill or wound, or attempt to kill or wound any deer kept or being in the uninclosed part of a forest, chace, or purlieu, he shall, for every offence, on conviction before a justice of the peace, forfeit and pay any sum not exceeding 50*l.*; and if he shall have been previously convicted of any offence relating to deer, and for which a pecuniary penalty is imposed by this act, and shall afterwards commit any of the offences hereinbefore last enumerated, whether it be of the same description as the first offence, or not, he

shall be deemed guilty of felony, and be liable to be punished as for a simple larceny.

27. If any deer, or any part thereof, or any snare or engine for the taking of deer, shall, by virtue of a search-warrant, be found in the possession or on the premises of any person with his knowledge, and such person being carried before a justice of the peace, and not satisfactorily accounting for the possession of either of the same, he shall forfeit any sum not exceeding 20*l*. If such person shall not be liable to conviction, then, for the discovery of the party who actually killed or stole the deer, the justice may, at his discretion, summon every person through whose hands the deer, or any part thereof, shall appear to have passed, and if the person from whom the same shall have been first received, or who shall have had possession thereof, shall not satisfy the justice that he came lawfully by the same, he shall be liable to the payment of any sum not exceeding 20*l*.

28. If any person shall wilfully set or use any snare or engine for the purpose of taking or killing deer in a forest, chace, or purlieu, (whether inclosed or not,) or in the fence or bank dividing the same from the adjoining land, or in any inclosed land where deer are usually kept, or shall wilfully destroy a part of the fence of any land where deer are usually kept, the offender, being convicted before a justice of the peace, shall forfeit any sum not exceeding 20*l*.

29. If any person shall enter a forest, chace, or purlieu, (whether inclosed or not,) or any inclosed land where deer are usually kept, with intent to hunt, course, wound, kill, snare, or carry away any deer, every person intrusted with the care of such deer, or any of his assistants, (whether in his presence or not,) may demand from the offender any fire-arms, snare, &c. in his possession, and also any dog brought for hunting, coursing, or killing deer; and if the offender should not immediately deliver up the same, to seize the same from him in any of those respective places, or in any other place to which he may have escaped, for the use of the owner of the deer. If the offender shall beat or wound any person intrusted with the care of deer, he shall be guilty of felony, and be liable to be punished as for simple larceny.

30. If any person shall, wilfully, in the night-time, take or kill a hare or coney in any warren or ground used for the breeding or keeping of hares or coneys, (whether inclosed or not,) the offender shall be guilty of a misdemeanor, and be punished accordingly; or if any person shall, wilfully, in the day-time, take or kill a hare or coney in any warren or ground, or shall, at any time, set or use therein any snare or engine for the taking of hares or coneys; the offender, being convicted thereof before a justice, shall forfeit any sum not exceeding 5*l*. Nothing herein contained to affect any person taking or killing, in the day-time, any coneys on a sea or river bank in the county of Lincoln, so far as the tide extends, or within one furlong of such bank.

31. If any person shall steal any dog, or any beast or bird ordinarily kept in a state of confinement, (not being the subject of larceny at common law,) the offender, being convicted thereof before a justice of the peace, shall, for the first offence, forfeit (over and above the value of the dog, bird, or beast stolen) any sum not exceeding 20*l*.; and if he shall afterwards be guilty of any of those offences, he shall be committed to hard labour in the house of correction for any time not exceeding twelve months, and if the subsequent conviction take place before two justices, they may further order him to be once or twice publicly or privately whipped, after the expiration of four days from the time of conviction.

32. If any dog or beast, or the skin thereof, or any bird or any of the plumage thereof, shall be found in the possession or on the premises of a person, by virtue of a search-warrant, the justice may restore the same to the owner, and the person in whose possession or on whose premises the same shall be found, (he knowing that the same has been stolen,)

shall be liable, for the first offence, to such forfeiture, and for every subsequent offence, to such punishment, as persons convicted of stealing any dog, beast, or bird.

33. If any person shall wilfully kill, wound, or take any house-dove or pigeon, under such circumstances as would not amount to larceny at common law, the offender, being convicted before a justice of the peace, shall forfeit (over and above the value of the bird) any sum not exceeding 2*l*.

34. If any person shall wilfully take or destroy any fish in the water which may run through or be in the land adjoining or belonging to the dwelling-house of the person being the owner of the water, or having a right of fishery therein, the offender shall be guilty of a misdemeanor. If any person shall wilfully take or destroy, or attempt to take or destroy, any fish in water adjoining a dwelling-house, but which shall be private property, or in which there shall be a private right of fishery, the offender, being convicted thereof before a justice of the peace, shall forfeit, over and above the value of the fish taken or destroyed, (if any) any sum not exceeding 5*l*. Nothing herein contained to extend to a person angling in the day-time; but if a person should, by angling in the day-time, wilfully take or destroy, or attempt to take or destroy, any fish in the water first-mentioned, he shall, on conviction before a justice of the peace, forfeit any sum not exceeding 5*l*., and if in the water last-mentioned, he shall forfeit not exceeding 2*l*. If the boundary of a parish, township, or vill, should happen to be in or by the side of such water, it shall be sufficient to prove that the offence was committed in the parish, township, or vill named in the indictment or information, or in any parish, township, or vill adjoining.

35. If any person shall, at any time, be found fishing against the provisions of this act, the owner of the ground or fishery, or any person authorized by him, may demand from the offender all his rods, lines, or other implements for taking or destroying fish, and if he should not immediately deliver up the same, to seize the same for the use of such owner. If the implements used by anglers (in the day-time) should be taken, or be delivered up, the offender to be exempt from the payment of any damages or penalty for angling.

36. If any person shall steal any oysters or oyster-brood from an oyster-bed, laying, or fishery, (being private property, and sufficiently marked out or known as such,) the offender to be deemed guilty of larceny; and if any dredge, net, instrument, or engine shall be used within the limits of an oyster-fishery, for the purpose of taking oysters or oyster-brood, although none should be actually taken, or any person shall, with any net or instrument, drag upon the ground or soil of a fishery, the offender shall be deemed guilty of a misdemeanor, and be punished by fine or imprisonment, or by both: the fine not to exceed 20*l*., and the imprisonment not to exceed three calendar months. In the indictment or information it shall be sufficient to describe (either by name or otherwise) the bed, laying, or fishery, in which the offence has been committed. Nothing herein contained to prevent a person from catching or fishing for any floating fish within the limits of an oyster-fishery with a net, or other instrument adapted for taking floating fish only.

37. If any person shall steal, or sever with intent to steal, the ore of any metal, or lapis calaminaris, manganese or mundick, or wad, black cawke or black lead, or coal, or cannel coal, from a mine, bed, or vein thereof, the offender to be deemed guilty of felony, and be liable to be punished as for simple larceny.

38. If any person shall steal, or cut, break, or damage with intent to steal, the whole or part of a tree, sapling, or shrub, or any underwood, growing in the ground adjoining or belonging to a dwelling-house, (if the value of the article stolen, or damage done, shall exceed 1*l*.) the offender shall be guilty of felony, and be liable to be punished as for simple

larceny. If any person shall steal, or cut, break, or damage with intent to steal, the whole or part of a tree, &c., growing elsewhere than in the situation before-mentioned, (if the value of the article stolen or destroyed should exceed 5*l.*) the offender shall be guilty of felony, and be liable to be punished as for simple larceny.

39. If any person shall steal, cut, break, or damage, with intent to steal, the whole or part of a tree, sapling, or shrub, or any underwood, wheresoever the same may be growing, the value of the article stolen, or the damage done, being of at least one shilling, the offender (before a justice of the peace) shall, for the first offence, forfeit (over and above the value of the article) any sum not exceeding 5*l.*; and if he shall afterwards be guilty of a like offence, he shall be committed to the common gaol, there to be kept to hard labour for any term not exceeding twelve calendar months. If the second conviction should take place before two justices, they may further order the offender (if a male) to be once or twice publicly or privately whipped, after the expiration of four days from the time of conviction. If any person, so twice convicted, shall afterwards commit any like offence, he shall be deemed guilty of felony, and be liable to be punished as for simple larceny.

40. If any person shall steal, cut, break, or throw down with intent to steal, any part of a live or dead fence, or a wooden post, rail, or pole, set up as a fence, or a stile or gate, the offender, being convicted before a justice of the peace, shall, for the first offence, forfeit (over and above the value of the article stolen, or the amount of injury done) any sum not exceeding 5*l.*; and if such offender shall afterwards be guilty of any like offence he shall be committed to the common gaol, and there be kept to hard labour, for any term not exceeding twelve calendar months. If the subsequent conviction should take place before two justices, they may further order the offender (if a male) to be once or twice publicly or privately whipped, after the expiration of four days from the time of conviction.

41. If the whole or a part of a tree, sapling, shrub, or any underwood, or part of a live or dead fence, or post, rail, stile, or gate, (being of the value of two shillings at least,) shall, by virtue of a search-warrant, be found in the possession or on the premises of any person, with his knowledge, and he shall not satisfy the justice that he came lawfully by the same, he shall forfeit (over and above the value of the article so found) any sum not exceeding 2*l.*

42. If any person shall steal, or destroy with intent to steal, any plant, root, fruit, or vegetable production, growing in a garden, orchard, nursery-ground, hot-house, green-house, or conservatory, the offender, being convicted thereof before a justice of the peace, shall (at the discretion of the justice) either be committed to the common gaol, there to be imprisoned only, or to be imprisoned and kept to hard labour, for any term not exceeding six calendar months, or else forfeit (over and above the value of the article stolen, or the amount of injury done) any sum not exceeding 20*l.*; and if the offender shall afterwards commit any like offence, he shall be deemed guilty of felony, and be liable to be punished as in the case of simple larceny.

43. If any person shall steal, or damage, with intent to steal, any cultivated root or plant used as food for man or beast, or for medicine, distilling, dyeing, or in the course of manufacture, and growing in an open or inclosed land, not being a garden, orchard, or nursery-ground, the offender, being convicted before a justice of the peace, shall, at the discretion of such justice, be committed to the common gaol, there to be imprisoned only, or be imprisoned and kept to hard labour, for any term not exceeding one calendar month, or forfeit (over and above the value of the article stolen, or the amount of injury done) any sum not exceeding 20*s.*, and in default of payment, with costs, (if ordered,) shall be committed for any term not exceeding one calendar month, unless payment be sooner made. If any offender shall afterwards be guilty of

any like offence, he shall be committed for any term not exceeding six calendar months, and if the subsequent conviction take place before two justices, they may further order the offender (if a male) to be once or twice publicly or privately whipped, after the expiration of four days from the time of conviction.

44. If any person shall steal, or rip, cut, or break with intent to steal, any glass or wood-work belonging to a building, or any lead or other metal, or any utensil or fixture fixed in or to any building, or any thing made of metal fixed in any land being private property, or for a fence to a dwelling-house, garden, or area, or in a square, street, or place dedicated to public use or ornament, the offender shall be guilty of felony, and be liable to be punished as for simple larceny, and it shall not be necessary to allege the same to be the property of any person.

45. If any person shall steal any chattel or fixture let to be used with a house or lodging, whether the contract be entered into by him or her, or by her husband, or by any person on behalf of him or her, or her husband, the offender shall be guilty of felony, and be punished as for simple larceny. In every case of stealing a chattel, an indictment may be preferred in the common form, as for larceny, and in every case of stealing a fixture, an indictment may be preferred in the same form as if the offender were not a tenant or lodger, and in either case, to lay the property in the owner or person letting to hire.

46. If any clerk or servant shall steal any chattel, money, or valuable security, belonging to or in the possession or power of his master, he shall be liable to be transported beyond the seas for any term not less than seven or more than fourteen years, or to be imprisoned for any term not exceeding three years, and (if a male, and the court think fit) to be once, twice, or thrice publicly or privately whipped.

47. If any clerk or servant, or any person employed in the capacity of a clerk or servant, shall, by virtue of his employment, receive or take into his possession any chattel, money, or valuable security, for, in the name, or on the account of his master, and shall fradulently embezzle the whole or a part thereof, he shall be deemed to have stolen the same, although such chattel, &c. were not received into the possession of his master otherwise than by the actual possession of the clerk or person so employed. The offender to be liable to any of the punishments hereinbefore last mentioned.

48. It shall be lawful to charge in the indictment and proceed against the offender for any number of distinct acts of embezzlement (not exceeding three) which may have been committed within six calendar months from the first to the last of such acts. In the indictment, (except where the offence relates to a chattel,) it shall be sufficient to allege the embezzlement to be of money, without specifying any particular coin or valuable security, which allegation (so far as regards the description of the property) shall be sustained, if the offender be proved to have embezzled to any amount, although the particular species of coin or valuable security should not be proved.

49. If any money, or security for money, shall be intrusted to a banker, merchant, broker, attorney, or other agent, with directions in writing to apply the whole or a part thereof, or the whole or a part of the proceeds of the security, for the purpose specified in the written directions, and he shall, contrary to the specified purpose, convert to his own use the whole or a part of the money, security, or proceeds, he shall be guilty of a misdemeanor, and be liable to be transported beyond the seas for any term not exceeding fourteen nor less than seven years, or to suffer such other punishment by fine or imprisonment, or by both, as the court may award. If any chattel or valuable security, or a power of attorney for the sale or transfer of any share or interest in a public stock or fund, whether of this kingdom, or of Ireland, or of any foreign state, or in a fund of a body corporate, company, or society, shall be intrusted to a banker, merchant, broker, or other agent, for safe custody, or for any special purpose, without any authority to sell, negotiate,

transfer, or pledge, and he shall, in any manner, convert to his own use the chattel or security, or the whole or a part of the proceeds of the same, or the whole or a part of the share or interest in the stock or fund to which the power of attorney may relate, he shall be guilty of a misdemeanor, and be liable to any of the punishments hereinbefore last mentioned.

50. Nothing herein contained relating to agents shall affect a trustee in or under any instrument whatever, or any mortgagee of any real or personal property, in respect of any act done by such trustee or mortgagee in relation to the property comprised in or affected by such trust or mortgage; nor restrain a banker, merchant, broker, attorney, or other agent, from receiving money which shall be or become actually due and payable upon or by virtue of a valuable security, in such manner as he might have done if this act had not been passed; nor from selling, transferring, or otherwise disposing of any securities or effects in his possession, upon which he shall have any lien, claim, or demand, unless the sale, transfer, or other disposal, shall extend to a greater number, or part of such securities or effects than is requisite for satisfying his lien, claim, or demand.

51. If a factor or agent, intrusted for the purpose of sale, with any goods or merchandize, or intrusted with a bill of lading, warehousekeeper's or wharfinger's certificate, or warrant or order for delivery of goods or merchandize, shall, for his own benefit, deposit or pledge any of such goods or merchandize, or any of the documents relating thereto, as a security for any money or negotiable instrument borrowed or received by him at or before the time of making the deposit or pledge, or intended to be thereafter borrowed or received, he shall be guilty of a misdemeanor, and be liable (at the discretion of the court) to be transported beyond the seas for any term not exceeding fourteen nor less than seven years, or to be punished by fine or imprisonment, or by both. No factor or agent to be liable to a prosecution for pledging or depositing any goods or merchandize, or documents relating thereto, if the same shall not be made a security for the payment of a greater sum than the amount which (at the time of the deposit or pledge) was justly due from his principal, together with the amount of any bills of exchange drawn by or on account of his principal, and accepted by him.

52. No proceeding, conviction, or judgment, to be had or taken against any banker, merchant, broker, factor, attorney, or other agent, under the provisions of this act, shall prevent any remedy at law or equity which an aggrieved party might or would have had if this act had not been passed; but the conviction of such offender shall not be received in evidence in any action or suit against him; nor shall he be liable to be convicted by any evidence whatever as an offender against this act, for any act done by him, if he should, at any time previously to his being indicted for the offence, have disclosed such act, on oath, in consequence of a compulsory process of law or equity, which had been *bonâ fide* instituted by an aggrieved party, or if he should have disclosed the same in an examination before any commissioners of bankrupt.

53. If any person shall, by any false pretence, obtain from another person any chattel, money, or valuable security, with intent to cheat or defraud him of the same, the offender shall be guilty of a misdemeanor, and be liable (at the discretion of the court) to be transported beyond the seas for the term of seven years, or be punished by fine or imprisonment, or by both. If, upon the trial of a person indicted for such misdemeanor, it should be proved that he obtained the property in such a manner as to amount in law to larceny, he shall not be entitled to be acquitted of such misdemeanor. No such indictment shall be removable by *certiorari*; and no person tried for such misdemeanor shall be liable to be afterwards prosecuted for larceny upon the same facts.

54. If any person shall receive any chattel, money, or other property, (knowing the same to have been stolen,) the stealing or taking whereof shall amount to felony, he shall be guilty of felony, and may be in-

dicted and convicted either as an accessory after the fact, or for a substantive felony; and, in the latter case, whether the principal felon shall or shall not have been previously convicted, or shall or shall not be amenable to justice. Such receiver (howsoever convicted) to be liable, at the discretion of the court, to be transported beyond the seas for any term not exceeding fourteen nor less than seven years, or to be imprisoned for any term not exceeding three years, and, if a male, to be once, twice, or thrice publicly or privately whipped, (if the court think fit,) in addition to the imprisonment. No person to be liable to be prosecuted a second time for the same offence.

55. If any person shall receive any chattel, money, or other property, (knowing the same to have been stolen,) the stealing of which is an indictable misdemeanor, he shall be guilty of a misdemeanor, and may be indicted and convicted thereof, whether the person guilty of the principal misdemeanor shall or shall not have been previously convicted thereof, or shall or shall not be amenable to justice. Such receiver shall be liable to be transported for seven years, or to be imprisoned for any term not exceeding two years, and, if a male, to be once, twice, or thrice publicly or privately whipped, (if the court think fit,) in addition to the imprisonment.

56. If any person shall receive any chattel, money, or other property, (knowing the same to have been stolen,) such person, whether charged as an accessory after the fact, or with a substantive felony, or with a misdemeanor, may be dealt with, tried, and punished as a receiver, in the place in which he shall have, or shall have had, any of the property in his possession, or in the place in which the party guilty of the principal felony or misdemeanor may by law be tried.

57. If any person guilty of any felony or misdemeanor, in stealing, obtaining, or converting, or in knowingly receiving any chattel, money, or other property, shall be indicted for any such offence by or on the behalf of the owner of the property, or his executor or administrator, and convicted thereof, the property shall be restored to the owner or his representative; and the court may award, from time to time, writs of restitution for such property, or may order restitution thereof in a summary way; but if it shall appear that any valuable security has been *bonâ fide* paid or discharged by some person or body corporate liable to the payment thereof, or, being a negotiable instrument, has been *bonâ fide* taken or received by transfer or delivery, by some person or body corporate, for a valuable consideration, without any notice, or reasonable cause to suspect that the same had by any felony or misdemeanor been stolen, the court shall not order restitution of such security.

58. Every person who shall corruptly take any money or reward, directly or indirectly, under pretence of helping a person to any chattel, money, or other property, which shall have been stolen or obtained, (unless he cause the offender to be apprehended and brought to trial for the same,) shall be guilty of felony, and be liable to be transported beyond the seas for life, or for not less than seven years, or to be imprisoned for any term not exceeding four years, and, if a male, to be once, twice, or thrice publicly or privately whipped (if the court think fit) in addition to the imprisonment.

59. If any person shall publicly advertise a reward for the return of any stolen or lost property, and shall, in such advertisement, use any words purporting that no questions will be asked, or shall make use of any words in any public advertisement purporting that a reward will be given or paid for any such property, without seizing or making any inquiry after the person producing the same; or shall promise in any such advertisement to return to a pawnbroker or other person the money paid or advanced by him, or any other money or reward for the return of the property; or if any person shall print or publish any such advertisement; in any of the above cases, the offender shall forfeit 50*l.* for every offence, to any one who will sue for the same by action of debt, with full costs of suit.

60. Where the stealing or taking of any property is by this act punishable on summary conviction, either for every offence, or for the first and second offence only, or the first offence only, any person who shall receive any such property (knowing the same to be unlawfully come by) shall, on conviction before a justice, be liable, for every first, second, or subsequent offence of receiving, to the same forfeiture and punishment as a person guilty of a first, second, or subsequent offence of stealing or taking such property.

61. In every case of felony punishable under this act, every principal in the second degree, and every accessory before the fact, shall be punished, with death or otherwise, in the same manner as the principal in the first degree; and every accessory after the fact (except a receiver of stolen goods) shall be liable to be imprisoned for any term not exceeding two years. Every person who shall aid, counsel, or procure the commission of any misdemeanor punishable under this act, shall be indicted and punished as a principal offender.

62. If any person shall aid, counsel, or procure the commission of any offence punishable by this act on summary conviction, for every time of its commission, or for the first and second time only, or for the first time only, he shall, on conviction before a justice, be liable to the same forfeiture and punishment as a person guilty of a first, second, or subsequent offence as a principal offender.

63. Any person found committing any offence punishable by virtue of this act, (except angling in the day-time,) may be immediately apprehended, without a warrant, by a peace-officer, or by the owner of the property on which the offence is committed, or by his servant or any person authorized by him, and forthwith taken before some neighbouring justice, to be dealt with according to law; and if any credible witness shall prove, upon oath, a reasonable cause to suspect that a person has in his possession, or on his premises, any property on or with respect to which any offence has been committed, the justice may grant a warrant to search for such property; and any person to whom any property may be offered to be sold, pawned, or delivered, (if he should have reasonable cause to suspect that any offence has been committed on or with respect to such property,) is required to apprehend and forthwith carry before a justice the party offering the same.

64. The prosecution for every offence punishable on summary conviction, shall be commenced within three calendar months after the commission of the offence, and the evidence of the aggrieved party shall be admitted in proof of the offence, and also the evidence of any inhabitant of the place in which the offence has been committed, although the penalty or forfeiture incurred by the offence may be payable to the general rate.

65. Where any person shall be charged, on the oath of a credible witness, with any offence punishable on summary conviction, the person charged may be summoned to appear, and if he shall not appear, then (upon proof of the service of the summons, by delivering the same to him personally, or by leaving it at his usual place of abode) the justice may either proceed to hear and determine the case *ex parte*, or issue his warrant for apprehending such person, and bringing him before himself or some other justice; or, the justice before whom the charge shall be made may, without any previous summons, (unless where otherwise directed,) issue such warrant, and proceed to hear and determine the case.

66. Every sum of money forfeited for the value of any property stolen or taken, or for the amount of any injury done, (the value or amount to be assessed by the convicting justice,) shall be paid to the aggrieved party, if known, except where such party has been examined in proof of the offence, and in that case, or where the aggrieved party is unknown, such sum shall be applied as a penalty; and every sum which may be imposed as a penalty, whether in addition to the value or amount or otherwise, shall be paid to the overseers or some other officer of the place

in which the offence has been committed, to be applied to the use of the general rate. Where several persons join in the commission of the same offence, and each be adjudged to forfeit a sum equivalent to the value of the property or to the amount of the injury, in every such case, no further sum shall be paid to the aggrieved party than that which shall be forfeited by one of the offenders only, and the corresponding sums forfeited by the other offenders are to be applied in the same manner as hereinbefore directed.

67. In every case of a summary conviction, where the sum forfeited for the value of the property stolen or taken, or for the amount of the injury done, or which may be imposed as a penalty, shall not be paid either immediately after the conviction, or within such period as the justice shall appoint at the time of conviction, the offender (unless where otherwise directed) may be committed to the common gaol, there to be imprisoned only, or to be imprisoned and kept to hard labour, for any term not exceeding two calendar months, where the amount forfeited, or the penalty imposed, or both, together with costs, shall not exceed 5*l.*; and for any term not exceeding four calendar months, where the amount with costs shall not exceed 10*l.*; and for any term not exceeding six calendar months, in any other case. The commitment to be determinable upon payment of the amount and costs.

68. Where any person shall be summarily convicted of any offence against this act, and it be a first conviction, he may be discharged, (if the justice think fit,) upon his making such satisfaction to the aggrieved party for damages and costs, or either of them, as shall be ascertained by the justice.

69. His majesty may extend his royal mercy to any person imprisoned by virtue of this act, although he be imprisoned for nonpayment of money to some party other than the crown.

70. If any person convicted of an offence punishable upon summary conviction, shall have paid the adjudged sum and costs, or shall have received a remission thereof from the crown, or shall have suffered imprisonment for non-payment thereof, or the imprisonment adjudged in the first instance, or shall have been discharged from his conviction, he shall be released from all further proceedings for the same cause.

72. Where the sum adjudged to be paid on any summary conviction shall exceed 5*l.*, or the imprisonment shall exceed one calendar month, or the conviction take place before one justice only, any person who may think himself aggrieved by such conviction, may appeal to the next court of general or quarter sessions, which shall be holden not less than twelve days after the day of conviction, for the place wherein the cause of complaint has arisen; but such person shall give to the complainant a notice in writing of the appeal, and of the cause and matter thereof within three days after the conviction, and seven clear days before the sessions, and shall also either remain in custody, or enter into a recognizance with two sufficient sureties to appear personally at the sessions, to try such appeal, to abide the judgment of the court thereupon, and to pay such costs as may be awarded. The court to hear and determine the matter of appeal, and make such order therein, with or without costs to either party, as shall seem meet; and in case of the dismissal of the appeal, or the affirmance of the conviction, shall order the offender to be punished according to the conviction, and to pay such costs as may be awarded, and, if necessary, issue process for enforcing such judgment.

73. No conviction, or adjudication made on appeal therefrom, shall be quashed for want of form, or be removed by *certiorari* or otherwise; and no warrant of commitment to be held void by reason of any defect therein, if it be therein alleged that the party has been convicted, and there be a valid conviction to sustain the same.

74. Every justice of peace shall transmit the conviction to the next court of general or quarter sessions, there to be kept among the records of the court; and upon any indictment or information against a person

for a subsequent offence, a copy of such conviction, certified by the proper officer of the court, or proved to be a true copy, shall be sufficient evidence to prove a conviction for the former offence, and the conviction shall be presumed to have been unappealed against, until the contrary be shewn.

75. All actions and prosecutions to be commenced for any thing done in pursuance of this act, shall be laid and tried in the county where the fact was committed, and shall be commenced within six calendar months after the fact committed; and notice in writing of such action, and of the cause thereof, shall be given to the defendant one calendar month, at least, before its commencement, to which the defendant may plead the general issue, and give this act and the special matter in evidence. No plaintiff to recover in any action if tender of sufficient amends have been made before the action commenced, or if a sufficient sum should have been paid into court after the action commenced, by or on behalf of the defendant; and if a verdict pass for the defendant, or the plaintiff become nonsuited, or discontinue the action after issue joined, or if, upon demurrer, judgment be given against the plaintiff, the defendant shall recover his full costs; and if a verdict be given for the plaintiff, he shall not have costs against the defendant, unless the judge certify his approbation of the action, and of the verdict obtained thereupon.

76. Nothing in this act [to extend to Scotland or Ireland, except as follows:—if any person shall have feloniously taken any chattel, money, valuable security, or other property, in one part of the kingdom, and afterwards have the same property in his possession in another part of the kingdom, he may be indicted and punished for larceny or theft in that part where he shall have such property, in the same manner as if he had actually stolen or taken it in that part; or if any person in one part of the kingdom should receive or have any chattel, &c. which has been feloniously taken in another part, he (knowing the same to have been feloniously taken) may be indicted and punished in that part of the kingdom in the same manner as if it had been originally stolen or taken in that part.

77. Where any felony or misdemeanor punishable under this act shall be committed within the jurisdiction of the admiralty of England, the same shall be dealt with in the same manner as any other felony or misdemeanor committed within that jurisdiction.

4.—MALICIOUS INJURIES TO PROPERTY.

[7 & 8 Geo. IV. c. 30.—Passed 21st June, 1827.]

An Act for consolidating and amending the Laws in England relative to malicious Injuries to Property.

1. The various statutes now in force at the time of passing this act, relative to malicious injuries to property, are by an act of the present session of parliament repealed from and after the last day of June in the present year, except as to offences committed before or upon that day. This act commenced on the 1st July, 1827.

2. If any person shall maliciously set fire to any church or chapel, or to any house, stable, out-house, warehouse, &c. or to any building used in carrying on trade, whether the same be in the possession of the offender or any other person, with intent to injure or defraud any person, the offender shall suffer death as a felon.

3. If any person shall maliciously cut, break, or damage with intent to destroy, any goods or article of silk, woollen, linen, or cotton, or any of those materials mixed with each other or mixed with any other material, or any frame-knitted piece, being in the loom or frame, or on any machine or engine, or on the rack or tenters, or in any stage of manufacture; or shall maliciously cut, break, or destroy any loom or implement, fixed or moveable, prepared for or employed in manufacturing;

or shall, by force, enter into any house or building, with intent to commit any of those offences, the offender shall be guilty of felony, and be liable to be transported for not less than seven years, or to be imprisoned for not exceeding four years, and if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped, in addition to the imprisonment.

4. If any person shall maliciously cut, break, or damage, with intent to destroy, any threshing machine, or other machine or engine, fixed or moveable, prepared or employed in any manufacture whatsoever, [*except for the manufacture of silk, and other articles, provided for in Clause* 3.] he shall be liable to be transported for seven years, or to be imprisoned for not exceeding two years, and if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped, in addition to the imprisonment.

5. If any person shall maliciously set fire to any mine of coal or cannel coal, he shall suffer death as a felon.

6. If any person shall maliciously cause any water to be conveyed into a mine, or into any part thereof, with intent to damage the mine, or shall maliciously pull down, or obstruct the airway, shaft, &c. the offender shall be liable to be transported for seven years, or to be imprisoned for not exceeding two years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped, in addition to the imprisonment.

7. If any person shall maliciously destroy or damage any engine used in the working of a mine, or any erection used for conducting the business thereof; or any bridge or way for the conveyance of minerals from a mine (whether such engine, erection, bridge, or way, be unfinished or completed,) he shall be guilty of felony, and be liable to any of the punishments hereinbefore last-mentioned.

8. If any persons shall riotously assemble together, and with force destroy or begin to destroy any church or chapel; or any house; or any erection used for carrying on trade or manufacture, or any machinery prepared for or employed in manufacture; or any engine used for the working of a mine, or any erection used for the working thereof; or any bridge or way for the conveyance of minerals from a mine; every offender shall suffer death as a felon.

9. If any person shall maliciously set fire to, cast away, or destroy any ship or vessel, (whether complete or unfinished,) or any of the goods on board of the same, with intent to prejudice the owner or underwriter thereof, the offender shall suffer death as a felon.

10. If any person shall maliciously damage (otherwise than by fire) any ship or vessel, whether complete or unfinished, with intent to destroy the same, he shall be liable to be transported for seven years, or to be imprisoned for not exceeding two years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped, in addition to the imprisonment.

11. If any person shall exhibit any false light or signal, with intent to bring a vessel into danger; or shall maliciously do anything tending to the immediate loss or destruction of a vessel in distress, or destroy any part of a vessel wrecked or cast on shore, or any goods or articles belonging to the same, or shall impede a person endeavouring to save his life, (whether he be on board or otherwise,) the offender shall suffer death as a felon.

12. If any person shall maliciously break down any sea bank or wall, or the wall or bank of a river or canal, whereby the same may be damaged, or be in danger of being so; or should damage any lock or other work on a river or canal; he shall be liable to be transported for life, or for not less than seven years, or to be imprisoned for not exceeding four years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment.

If any person shall maliciously cut off or remove any piles or other ma-

terials used for securing a sea bank or wall, or the bank or wall of a river or canal; or shall draw up a floodgate, or do any injury to a river or canal with intent to obstruct the carrying on, completing, or maintaining the navigation thereof; the offender shall be liable to be transported for seven years, or to be imprisoned for not exceeding two years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment.

13. If any person shall maliciously pull down or destroy a public bridge, or do any injury with intent to render the bridge or any part thereof dangerous or impassable, he shall be liable to be transported for not less than seven years, or to be imprisoned for not exceeding four years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment.

14. If any person shall maliciously destroy the whole or part of a turnpike-gate, or the chain, bar, &c. erected to prevent passengers from passing without paying the toll, or any house, or weighing machine, the offender shall be guilty of a misdemeanor, and be punished accordingly.

15. If any person shall maliciously, in any way, destroy the dam of a fish-pond, or other water, being private property, with intent to take or destroy any of the fish in the same; or shall maliciously put any noxious material in any such pond or water, with intent to destroy the fish therein; or shall maliciously destroy the dam of a mill-pond; the offender shall be guilty of a misdemeanor, and be punished accordingly.

16. If any person shall maliciously kill or wound any cattle, he shall be transported for life, or for not less than seven years, or be imprisoned for not exceeding four years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment.

17. If any person shall maliciously set fire to a stack of any sort of grain, straw, hay, wood, &c. he shall suffer death as a felon; or maliciously set fire to a crop of grain, &c. (whether standing or cut down); or to any part of a wood or plantation, wheresoever the same may be growing; he shall either be transported for seven years, or be imprisoned for not exceeding two years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment.

18. If any person shall maliciously destroy any hopbinds growing on poles, he shall be liable to be transported for life, or for not less than seven years, or be imprisoned for not exceeding four years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment.

19. If any person shall maliciously destroy or damage the whole or part of any tree, &c. growing in any ground adjoining or belonging to a dwelling-house, (if the amount of injury exceed 1*l.*) he shall be transported for seven years, or be imprisoned for not exceeding two years, and, if a male, and the court think fit, to be once, twice, or thrice publicly or privately whipped in addition to the imprisonment; or, if any person should maliciously destroy or damage the whole or part of any tree, &c. growing elsewhere than before mentioned, (where the amount of injury shall exceed 5*l.*) he shall be liable to any of the last-mentioned punishments.

20. If any person shall maliciously destroy or damage the whole or part of any tree, &c. wheresoever growing, and the injury done should amount to 1*s.* at the least, he shall, (being convicted before a justice of the peace,) for the first offence, forfeit, over and above the amount of injury done, not exceeding 5*l.*; and for the second offence, be committed to the common gaol, there to be kept to hard labour for not exceeding twelve calendar months; and if the second conviction take place before two justices, they may further order the offender, if a male, to be once, twice, or thrice publicly or privately whipped. If any person so twice convicted should commit a third offence, he shall be liable to any of the punishments which the court may award for the felony last-mentioned.

21. If any person shall maliciously destroy, or damage with intent to destroy, any vegetable production growing in a garden, &c. and being convicted thereof before a justice, he shall either be committed to the common gaol, there to be imprisoned only, or to be imprisoned and kept to hard labour, for not exceeding six calendar months, or forfeit (over and above the amount of injury done) not exceeding 20*l.*; and if he shall subsequently be convicted of a similar offence, he shall be deemed guilty of felony, and be liable to any of the punishments which the court may award for the felony last-mentioned.

22. If any person shall maliciously destroy or damage any cultivated root or plant used for the food of man or beast, or for medicine, distilling, or dyeing, or any manufacture, growing in any open or inclosed land, not being a garden, &c. the offender being convicted thereof before a justice, shall either be committed to the common gaol, there to be imprisoned only, or to be imprisoned and kept to hard labour, for not exceeding one calendar month, or forfeit (over and above the amount of injury done) not exceeding 20*s.*, together with costs, (if ordered,) and in default of payment thereof, shall be committed for not exceeding one calendar month, unless payment be sooner made; and if the offender shall subsequently be convicted of a similar offence, he shall be committed for not exceeding six calendar months, and if the subsequent conviction take place before two justices, they may further order the offender, if a male, to be once, twice, or thrice publicly or privately whipped, after the expiration of four days from the time of conviction.

23. If any person shall maliciously destroy or damage any fence, stile, or gate, he shall, for the first offence, forfeit (over and above the amount of injury done) not exceeding 5*l.*; and if he shall afterwards be guilty of a similar offence, he shall be committed to the common gaol, there to be kept to hard labour for not exceeding twelve calendar months, and if the subsequent conviction take place before two justices, they may further order him to be once, twice, or thrice publicly or privately whipped, after the expiration of four days from the time of conviction.

24. If any person shall maliciously commit any injury to or upon any real or personal property, for which no remedy is herein provided, he shall forfeit such sum as may appear to the justice to be a reasonable compensation for the same, not exceeding 5*l.*, which sum shall be paid to the aggrieved party, unless such party is examined in proof of the offence, then the money shall be applied as every penalty imposed by a justice under this act; and if such sum, together with costs, (if ordered,) should not be paid immediately after the conviction, or within such time as the justice may appoint, the offender shall be committed to the common gaol, there to be imprisoned only, or to be imprisoned and kept to hard labour for not exceeding two calendar months, unless sooner satisfied. Nothing herein contained to extend to any case where the party trespassing acted under a reasonable supposition that he had a right to do the act complained of; nor to any trespass not being malicious, committed in hunting, fishing, or sporting, but such trespass may be punished as heretofore.

25. Every punishment and forfeiture imposed by this act shall be enforced, whether the offence be committed from malice conceived against the owner of the property in respect of which it shall be committed, or otherwise.

26. In the case of every felony punishable under this act, every principal in the second degree, and every accessory before the fact, shall be punished as a principal; and every accessory after the fact shall be liable to be imprisoned for not exceeding two years. Every person who shall aid, counsel, or procure the commission of any misdemeanor punishable under this act, shall be indicted and punished as a principal.

27. Where any person shall be convicted of an indictable offence punishable under this act, for which imprisonment may be awarded, the court may sentence the offender to be imprisoned, or to be imprisoned

and kept to hard labour, and also direct that he be kept in solitary confinement for the whole or any portion of the imprisonment.

28. Any person found committing any offence against this act, he may be immediately apprehended, without a warrant, by any peace-officer, or the owner of the injured property, or any person authorized by him, and forthwith taken before some neighbouring justice.

29. The prosecution for every offence punishable on summary conviction shall be commenced within three calendar months after the commission of the offence, and the evidence of the aggrieved party shall be admitted in proof of the offence, and also the evidence of any inhabitant of the county or place in which the offence has been committed, notwithstanding any forfeiture incurred by the offence may be payable to the general rate of such county, &c.

30. Where a person shall be charged on the oath of a credible witness, before a justice, with any offence punishable under this act, the justice may summon such person to appear, and if he should not appear, (upon proof being given of the service of the summons,) the justice may either proceed to hear and determine the case, or issue his warrant for the apprehension of such person; or the justice may, without any previous summons, (unless otherwise directed,) issue his warrant in the first instance.

31. Where any offence is by this act punishable on summary conviction, either for every time of its commission, or for the first and second time only, any person who shall aid, counsel, or procure the commission of an offence, shall be liable to the same forfeiture and punishment as a principal offender.

32. In every case of a summary conviction, where the sum forfeited shall not be paid, either immediately after the conviction, or within the time appointed by the justice, the convicting justice, (unless where otherwise directed,) may commit the offender to the common gaol, there to be imprisoned only, or to be imprisoned and kept to hard labour, for not exceeding two calendar months, where the amount of the forfeiture, together with costs, shall not exceed 5*l.*; and not exceeding six calendar months in any other case. The commitment to be determinable upon payment of the amount and costs.

The regulations respecting the application of fines, power of appeal, and the limitations of actions, are similar to those in the larceny act.

5.—REMEDIES AGAINST THE HUNDRED.

[7 & 8 Geo. IV. c. 31.—Passed 21st June, 1827.]

An Act for consolidating and amending the Laws in England relative to Remedies against the Hundred.

1. The various statutes in force at the time of passing this act, relative to remedies against the hundred for the damage occasioned by persons riotously and tumultuously assembled, are, by an act of the present session of parliament, repealed from and after the last day of June, 1827, except as to offences committed before or upon that day. This act commenced on the 1st of July, 1827.

2. If any church or chapel, or any house, stable, coach-house, outhouse, warehouse, &c., or any building used in carrying on trade; or any machinery, fixed or moveable, prepared for or employed in manufacture; or any engine for sinking, draining, or working a mine; or any building used in conducting the business thereof; or any bridge or way for conveying minerals from a mine; shall be feloniously demolished or destroyed by persons riotously assembled together, the inhabitants of the hundred (by whatever name denominated) in which any of those offences are committed, shall yield full compensation to the person injured, not only for the damage done to anything hereinbefore enumerated, but also for the damage which may be done to any fixture or goods whatever therein contained.

3. No action or summary proceeding shall be maintainable unless the person injured, or the person who shall have knowledge of the circumstances of the offence, or the servant who had the care of the property damaged, shall, within seven days after the offence, go before a justice having jurisdiction over the place where the offence has been committed, and state, upon oath, the names of the offenders, if known, and submit to be examined touching the circumstances of the offence, and become bound by recognizances to prosecute the offenders when apprehended. No person to be enabled to bring any action, unless he commence the same within three calendar months after the offence.

4 & 5. No process for appearance in any action to be brought against the hundred shall be served on any inhabitant thereof, except on the high constable, who shall, within seven days, give notice thereof to two justices, and cause to be entered an appearance in such action, and to defend the same on behalf of the inhabitants of the hundred; or, instead thereof, he may, with the consent of the justices, suffer judgment to go by default. The high constable upon whom the process shall be served, shall, notwithstanding the expiration of his office, continue to act until the termination of all proceedings relating to the same: but if he should die during the process, the succeeding high constable to act in his stead. No inhabitant shall, by reason of any interest arising from his inhabitancy, be exempted or precluded from giving evidence either for plaintiff or defendant.

6. Wherever the plaintiff shall recover judgment, no writ of execution shall be executed on any inhabitant or high constable, but the sheriff, upon the receipt of the writ, shall (on payment of the fee of five shillings) make his warrant to the treasurer of the county, &c., commanding him to pay to the plaintiff the sum directed to be levied, which treasurer is required to pay the same out of any public money which may then be in his hands, or may come into his hands before the next sessions; and if there be not sufficient money for that purpose before the next sessions, the treasurer shall give notice thereof to the justices, who shall proceed as is hereinafter mentioned.

7. If the high constable shall produce and prove before two justices an account of the necessary expenses incurred by him in consequence of an action against the hundred, such justices shall make an order for the reimbursement upon the treasurer of the county, &c. If, in any such action, judgment shall be given against the plaintiff, the high constable shall be reimbursed for the necessary expenses incurred by him, over and above the taxed costs; and if it should be proved to the justices, that the plaintiff in the action is insolvent, they shall make an order upon the treasurer for the payment of the taxed costs. The justices at the next general or quarter sessions, or adjournment thereof, shall direct all sums of money that have been paid, or ordered to be paid, by the treasurer, to be raised on the inhabitants of the hundred against which any action has been brought, over and above the general rate to be paid in common with the rest of the country, &c.

8. No action to be commenced against the inhabitants of the hundred where the damage alleged to have been sustained does not exceed 30*l.*; but the party injured, shall, within seven days after the offence, give a notice in writing of his claim for compensation (according to the form of the schedule hereunto annexed) to the high constable, who shall, within seven days after the receipt of the notice, exhibit the same to two justices, and they shall appoint a special petty session of all the justices of the county, &c. to be held within not less than twenty, nor more than thirty days after the exhibition of the notice, to hear and determine any claim which may be brought before them. The high constable, within three days after the appointment, is to give notice in writing to the claimant of the day, hour, and place appointed for the petty session, and the like notice, within ten days, to all the justices for the county, &c.; and the claimant must cause a notice (in the form of the schedule here-

unto annexed) to be placed on the church or chapel door, or other conspicuous part of the parish, on two Sundays preceding the holding of such petty session.

9. The justices (not being less than two) at the petty session or adjournment thereof, to hear and examine upon oath or affirmation the claimant, and any of the inhabitants of the hundred, and their witnesses, concerning the offence and the damage sustained, and if they shall find that the claimant has sustained any damage, to make an order for the amount, together with reasonable costs and charges, and also make an order for the reasonable costs and charges (if any) of the high constable or inhabitants, which orders are to be directed to the treasurer of the county, &c. who shall discharge the same.

10. If any high constable shall refuse or neglect to exhibit or give notice as is required in any of the cases herein mentioned, the party injured may sue him for the amount of damage sustained, to be recovered by an action on the case, with full costs of suit.

11. Every action or summary claim for compensation for the damage caused to any church or chapel shall be brought in the name of the rector, vicar, or curate thereof, or in the names of the church or chapel wardens, or in the name of the person in whom the property is vested, and the amount recovered to be applied in the rebuilding or repairing such church or chapel. Where any offence shall be committed on the property of a body corporate, they may recover compensation against the hundred in the same manner as any person damnified is enabled to do.

12. Where any of the offences shall be committed in a county of a city or town, or in any liberty, franchise, city, town, or place, the inhabitants thereof shall yield compensation in the same manner as the inhabitants of a hundred; and everything in this act in anywise relating to a hundred, or to the inhabitants thereof, shall equally apply to every city, town, &c. and to the inhabitants thereof; and where the justices of the county, &c. are excluded from holding jurisdiction in any liberty, franchise, city, town, or place, all the powers, authorities, and duties given to or imposed on such justices shall be exercised by the justices of the liberty, city, &c.; and where the offence is committed in a county of a city or town, all the like powers, &c. shall be exercised by the justices of the county. In every action or summary claim against the inhabitants of any place, the process for appearance, and the notice required in the case of the claim, shall be served upon a peace-officer of the county, &c., and all matters which by this act the high constable of a hundred is required to do, shall be done by the officer so served, who shall have the same powers and remedies as the high constable, and be subject to the same liabilities, and shall, notwithstanding the expiration of his office, continue to act until the termination of all proceedings in any action or claim; but if he should die during any proceedings, his successor to act in his stead.

13. In any place where the sheriff is not warranted in executing writs, all other officers shall have the same power of granting a warrant for the payment of the sum directed to be levied as is given to a sheriff in the case of a writ of execution.

14. The warrant of the sheriff or other officer upon a writ of execution against the inhabitants of any place, and every order of justices for payment to the party injured, or to the peace-officer or inhabitants, shall be directed to the treasurer of the county, &c. in which such place is situate, who is required to pay the same; and the justices of the county, &c. at their next sessions, shall direct that the amount of such sum be raised on the inhabitants of such place, (over and above the general county rate,) and be forthwith paid to the treasurer.

15. All sums of money payable by virtue of any warrant or order arising out of any action or summary claim against the inhabitants of a county or place, shall be paid out of the county rate, (if any,) or out of any fund applicable to similar purposes, by the treasurer or

other officer having the collection or disbursement of such rate or fund; and where there is no rate or fund, the same shall be paid out of the fund for the relief of the poor of the particular place where the offence was committed, by the officers having the collection or disbursement of such fund; and in every such case, the warrant and order are to be directed and delivered to the treasurer, or other officer, instead of the treasurer of the county, &c.

16. This act not to extend to Scotland or Ireland.

Form of Notice to the high constable of a hundred or other like district, or to the peace-officer of a county of a city or town, or of a liberty, franchise, city, town, or place.—To the high constable [*or* to —— one of the high constables] of, &c. [*or* to —— a peace-officer] of, &c.—I hereby give you notice, that I intend to claim compensation from the inhabitants of [*here specify the hundred or other like district, or county of a city, &c., or liberty, franchise, &c., as the case may be*], on account of the damage which I have sustained by means of [*here state the offence, the time and place where it was committed, and the nature and amount of the damage*]; and I hereby require you, within seven days after your receipt of this notice, to exhibit the same to some two justices of the peace of the county [riding *or* division] of —— residing in or acting for the said hundred, &c. [*or if in a liberty, franchise, &c. where the justices of the county, riding, or division have no jurisdiction, then say* to some two justices of the peace of, *naming the liberty, franchise, &c.*], [*or if in a county of a city, &c. then say*, to some two justices of the peace of, *naming the county of the city, &c.*], in order that they may appoint a time and place for holding a special petty session to hear and determine my claim for compensation by virtue of an act passed in the seventh and eighth years of the reign of king George the Fourth, intituled "An Act for consolidating and amending the Laws in England relative to Remedies against the Hundred;" and you are required to give me notice of the day, hour, and place appointed for holding such petty session within three days after the justice shall have appointed the same. Given under my hand this —— day of —— in the year of our Lord ——— (Signed) A. B.

Form of Notice to be placed on the church or chapel door or other conspicuous part of the parish, township, or place (as the case may be.)—I hereby give notice, that I shall apply for compensation to the justices of the peace at a special petty sessions to be holden at ——— on the —— day of ——— next, at the hour of —— in the forenoon, on account of the damage which I have sustained by means of [*here state the offence, the time and place where it was committed, and the nature and amount of the damage, in the same manner as in the preceding form.*] Given under my hand this —— day of —— in the year of our Lord ——— (Signed) A. B.

6.—BILLS OF EXCHANGE AND PROMISSORY NOTES.

[7 & 8 Geo. IV. c. 15.—Passed April 12, 1827.]

An Act for declaring the Law in relation to Bills of Exchange and Promissory Notes becoming payable on Good Friday or Christmas Day.

1. From and immediately after the 10th of April, 1827, in all cases where a bill of exchange or a promissory note shall be payable on the day preceding Good Friday or Christmas-day, it shall not be necessary for the holder of such a bill or note to give notice of the dishonour thereof until the day following Good Friday or Christmas-day; and that whenever Christmas-day shall fall on a Monday, it shall not be necessary for the holder of a bill or note which was payable on the preceding Saturday, to give notice of the dishonour thereof until the day following Christmas-day.

2 & 3. In all cases where a bill of exchange or promissory note shall

become payable on a fast or thanksgiving day, the same to be payable on the day next preceding the day of fast or thanksgiving, and may be noted and protested on such preceding day, and it shall not be necessary to give notice of the dishonour thereof until the day following the fast or thanksgiving day. If a fast or thanksgiving day be appointed on a Monday, it shall not be necessary for the holder of a bill or note which was payable on the preceding Saturday to give notice of the dishonour thereof until the Tuesday following such fast or thanksgiving day. Every fast or thanksgiving day shall for all purposes whatever, as relates to bills of exchange or promissory notes, be considered as a Sunday.

4. This act not to extend to Scotland.

7.—REGULATION OF THE COST OF DISTRESSES.

[7 & 8 Geo. IV. c. 17.—Passed May 28, 1827.]

An Act to extend the Provisions of an Act made in the Fifty-seventh year of King George III. for regulating the Costs of certain Distresses.

From and after the passing of this act, all the rules, regulations, clauses, provisions, penalties, matters, and things, contained in the act of 57 Geo. III. c. 93, intituled "*An Act to regulate the Costs of Distresses levied for payment of small Rents,*" shall extend and be applied, and be put in execution (so far as the same may be applicable) with respect to any distress or levy that may be made for any land-tax, assessed taxes, poor rates, church rates, tithes, highway rates, sewer rates, or any other rates or assessments whatever, in all cases where the sum demanded and due for such rates, &c. shall not exceed the sum of 20*l.*, and in all cases where the whole of the several sums sought to be levied by distress, taken for different purposes at the same time, shall not exceed the sum of 20*l.*; and that such costs and charges, and no other, shall be payable and taken, as is made payable by the 37th Geo. III., and that all proceedings may be had and taken against any person transgressing any of the regulations, and be liable to the penalties therein directed to be imposed for making a distress contrary to the provisions thereof. In any order or judgment of the justices, before whom any complaint shall be preferred, (in consequence of this act,) such order to be expressed to be made upon a complaint for the breach of the act of 57 Geo. III. as amended by this act, which act of 57 Geo. III. and this act are to be taken and construed together as one act, to all intents and purposes whatsoever.

57 Geo. III. c. 93.

No person making distress for rent, where the sum due shall not exceed 20*l.* to take other charges than mentioned in the schedule annexed; nor to charge for any act not done.

Party aggrieved by any such practice may apply to a justice of the peace.

Justice may adjudge treble the amount of the monies unlawfully taken to be paid with costs, which may be levied by distress.

If no sufficient distress can be had, the justice may imprison the party until the judgment be satisfied.

Justices may summon witnesses—any person refusing to attend or be examined, to forfeit not exceeding 40*l.*

If complaint unfounded, justice may give costs to the party complained against.

No judgment to be given against any landlord, unless he personally levies the distress.

The parties are not deprived of other legal remedies.

Brokers to give copies of their charges to persons distrained.

Printed copy of act to be hung up in session's house.

SCHEDULE

Of the Limitation of Costs and Charges on Distresses for small Rents.

	£.	s.	d.
Levying distress	0	3	0
Man in possession, per day	0	2	6
Appraisement, whether by one broker or more, sixpence in the pound on the value of the goods	0	0	0
Stamp, the lawful amount thereof	0	0	0
All expenses of advertisement, if any such	0	10	0
Catalogues, sale, and commission, and delivery of goods, one shilling in the pound on the net produce of sale.			

8.—MAN TRAPS AND SPRING GUNS.

[7 & 8 Geo. IV. c. 18.—Passed 28th May, 1827.]

An Act to prohibit the setting of Spring Guns, Man Traps, and other Engines calculated to destroy human Life, or inflict grievous bodily Harm.

1. From and after the passing of this act, if any person shall set or place, or cause to be set or placed, any spring gun, man trap, or other engine, calculated to destroy human life, or inflict grievous bodily harm, with the intent that the same, or whereby the same, may destroy or inflict grievous bodily harm upon a trespasser or other person coming in contact therewith, the person so setting or placing, or causing to be so set or placed, such gun, trap, or engine, shall be guilty of a misdemeanor.

2. Nothing herein contained shall extend to make it illegal to set any gin or trap that may have been, or may usually be set with the intention of destroying vermin.

3. If any person shall knowingly and wilfully permit any such spring gun, or other engine, which may have been set, fixed, or left in any place then being in or afterwards coming into his possession or occupation, by some other person or persons, to continue so set or fixed, the person permitting the same to continue shall be deemed to have set such gun or other engine.

4. Nothing in this act shall be deemed or construed to make it a misdemeanor within the meaning of this act, to set, or cause to be set, or to be continued set, (from sun-set to sun-rise,) any spring gun or other engine in a dwelling-house for the protection thereof.

5. This act shall not in any manner affect or authorize any proceedings in any civil or criminal court for any matter or thing committed previously to the passing of this act.

6. This act not to extend to Scotland.

9.—POSTAGE DUTIES IN GREAT BRITAIN AND IRELAND.

[7 & 8 Geo. IV. c. 21.—Passed 28th May, 1827.]

An Act to amend the Laws relating to the Duties of Postage in Great Britain and Ireland.

1. From and after 5th July, 1827, in lieu of all duties of postage granted and made payable under any act in force in Great Britain and Ireland respectively, upon letters conveyed from either of those parts of the kingdom to the other, there shall be levied and paid the like rates of postage (according to the distances which such letters are conveyed) as would be payable on the conveyance of letters from place to place in Great Britain, in addition to the separate rates of packet postage now payable, as also to the several rates of duty payable under the acts

for building the Menai and Conway bridges; the whole being according to schedule A. annexed to this act.

2. No other packet postage shall, in any case, be demanded or paid for letters or packets, between Great Britain and Ireland, other than such as is set forth in schedule A. annexed to this act; and all other rates of packet postage between Great Britain and Ireland shall cease from that period, notwithstanding what may be contained in any act to the contrary.

3. The several rates of postage upon letters and packets conveyed to and from Ireland, shall be charged, levied, and collected, (according to the amount thereof,) in the currency of the United Kingdom of Great Britain and Ireland, according to schedule B. annexed to this act.

4. The postmaster-general, and his deputies, shall demand and receive for the conveyance of printed votes and proceedings in Parliament, by packet-boats from Great Britain and Ireland, to any of his majesty's colonies and possessions beyond the seas, after the rate of 1½*d.* and no more, for every ounce weight thereof, and so in proportion, in lieu of any sum payable under any act in force before the passing of this act; the same to be paid at the time such printed vote, &c. shall be put into the post-office. Every printed vote, &c. to be without a cover, or in a cover open at the sides; and there shall be no writing thereupon other than the superscription, and no other paper or thing inclosed or concealed therein.

5. The postmaster-general and his deputies, in his majesty's colonies and possessions beyond the seas, shall receive any votes, proceedings, or public papers, (printed by order or under the authority of the legislative assembly of such colonies, &c.) for conveyance by packet-boats to Great Britain and Ireland, and to receive for the conveyance thereof, after the rate of 1½*d.* for every ounce weight, and so in proportion, to be paid, on delivery thereof, by the person to whom the same shall be addressed. Every printed vote, &c. to be without a cover, or in a cover open at the sides; and there shall be no writing thereupon other than the superscription, and no other paper or thing inclosed or concealed therein.

6. The postmaster-general and his deputies shall receive for every newspaper (printed within his majesty's possessions) brought into the United Kingdom by ships other than packets, and sent to the post-office of the place at which the letters brought by such ships are landed, the sum of 3*d.* on delivery thereof, from the person to whom the same shall be addressed. Every paper to be sent without a cover, or in a cover open at the sides; and there shall be no writing thereupon other than the superscription, and no other paper or thing inclosed or concealed therein.

7. The postmaster-general and his deputies shall receive, at the port of Falmouth, any pamphlet, magazine, review, or other periodical publication, for conveyance by packet-boat to any of his majesty's possessions, and demand for the conveyance of the same (not exceeding six ounces in weight) the sum of 1*s.* and the further sum of 3*d.* for every ounce exceeding that weight; a fraction of an ounce to be charged as an ounce. Every pamphlet, &c. to be sent without a cover, or in a cover open at the sides; and no writing to be thereupon other than the superscription, and no other paper or thing inclosed or concealed therein.

8. Any letter or packet from or to any place in Great Britain, directed to or sent from Dunmore, or within the delivery and vicinity thereof, shall not be charged or liable to any increase of postage in respect of being so carried to or from Dublin or Waterford, nor to any greater amount of postage than according to the actual distance between Howth and Dunmore and the town or place in Great Britain from or to which they shall be sent; but such letter, &c. to be charged according to the rates specified in schedule A. annexed to this act.

12. Every newspaper or other printed paper liable to the stamp duty, (and for the conveyance of which any duty of postage is chargeable,)

shal. be put into the receiving-house for the town or place in which such newspaper is published, on any day within seven days next after the day on which the same is published; (the day of publication to be ascertained by the date of such paper;) and if any paper shall be put into any post-office after the expiration of such seven days, to be charged with a rate of postage (equal to that of a single letter sent by the post) from the place where it was published to the place to which it is addressed.

13. From and after the passing of this act, all merchants' accounts, bills of exchange, invoices, stamped receipts, bills of lading, and proceedings at law, written on one and the same piece of paper with a letter, shall be allowed and taken without rate in the price of the letter; and that any piece or sheet of paper upon which letters to several distinct persons shall be written, shall not be charged with any higher rate of postage in the United Kingdom, than if one letter only were written upon such piece, &c. of paper.

14. Any person authorized by the postmaster-general of Great Britain and Ireland shall demand and receive from the master, commander, or other person having the charge of any ship or vessel arriving at or off any port in the United Kingdom, all the letters and packets on board the same as are not exempted by law; and such commander is required forthwith to deliver the same, but to retain on board all letters or packets exceeding the weight of three ounces, until he shall arrive at the regular place of discharge of such vessel. If any letter or packet, not exceeding the weight of three ounces, (not being exempted by law,) shall be found in any such vessel, or in the possession of the commander, crew, or passengers, at any time after the same have been demanded or delivered, every penalty payable by law in respect of letters found in the possession of the master of any vessel after delivering his letters at the post-office of the port at which he may touch prior to his arriving at the port where the vessel is to report, or in the possession or baggage of any passenger, or any of the crew.

15. Whenever it shall happen that a letter is addressed to a commissioned officer of the army, navy, or ordnance, or of any of the departments belonging thereto, at the place where such officer has been employed on actual service, and that, before the delivery of such letter, he shall have been removed therefrom in the execution of his public duty, such letter shall not be charged (for the conveyance of the same to where the letter may ultimately be delivered) above the rate of postage payable for the delivery of the same at the place to which it was originally directed.

16. All the powers, provisions, privileges, advantages, disabilities, penalties, forfeitures, and distribution thereof, and all clauses and other matters and things contained in any act in force at the time of the passing of this act relating to the post-office, or any rates or duties payable on the port or conveyance of letters or packets in Great Britain and Ireland, and not repealed or altered by this act, shall (so far as the same may be applicable) continue in force, and be applied to this act and to the rates and duties hereby made payable, as fully and effectually as if the same had been particularly repealed and re-enacted in the body of this act.

17. Such parts of the 55th Geo. III. c. 103, intituled "*An Act to Regulate the Postage of Ship Letters to and from Ireland*," as except or refer to Great Britain, are hereby repealed.

18. All the penalties of 10*l.* imposed by 53 Geo. III. c. 58, for offences against that act, are to continue in force, and be recoverable in the manner therein directed.

SCHEDULE (A).

Rates of Postage to be taken in the Currency of the United Kingdom from the Port and Conveyance of Letters and Packets by the Post from any Place in Great Britain to any Place in Ireland, or from any Place in Ireland to any Place in Great Britain.

DISTANCE.	Single Letter.	Double Letter.	Treble letter, or other, under an oz. weight.	For every oz. weight, and for every Packet not exceeding 1 oz. in weight
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
If the distance of such places shall not exceed 15 Miles, British measure .	0 4	0 8	1 0	1 4
If such distance shall exceed 15, and not exceed 20 such miles . . .	0 5	0 10	1 3	1 8
Exceeding 20 and not exceeding 30 .	0 6	1 0	1 6	2 0
- - 30 - - - 50 .	0 7	1 2	1 9	2 4
- - 50 - - - 80 .	0 8	1 4	2 0	2 8
- - 80 - - - 120 .	0 9	1 6	2 3	3 0
- - 120 - - - 170 .	0 10	1 8	2 6	3 4
- - 170 - - - 230 .	0 11	1 10	2 9	3 8
- - 230 - - - 300 .	1 0	2 0	3 0	4 0
- - 300 - - - 400 .	1 1	2 2	3 3	4 4
- - 400 - - - 500 .	1 2	2 4	3 6	4 8
- - 500 - - - 600 .	1 3	2 6	3 9	5 0
- - 600 - - - 700 .	1 4	2 8	4 0	5 4
- - 700 - - - - .	1 5	2 10	4 3	5 8
Letters and packets conveyed by packet-boats between the ports of Portpatrick and Donaghadee, a packet-postage over and above all other rates	0 4	0 8	1 0	1 4
Letters and packets conveyed by packet-boats from or to Holyhead or Milford Haven, to or from any port in Ireland, a packet-postage over and above all other rates . .	0 2	0 4	0 6	0 8
Letters and packets conveyed by packet-boats to or from Liverpool, from or to Dublin, or any other port in Ireland, a packet-postage over and above all other rates . . . [No letter sent by way of Liverpool to be charged with a higher rate of postage than if it were sent by way of Holyhead.]	0 8	1 4	2 0	2 8
Letters and packets to and from any part of Great Britain or Ireland, by way of Dublin and Holyhead, in addition to all other rates (Menai Bridge)	0 1	0 2	0 3	0 4
Letters and packets to and from any part of Great Britain or Ireland, by way of Conway or Chester, in addition to all other rates (Conway Bridge)	0 1	0 2	0 3	0 4

And so in proportion, in all the aforesaid cases, for any other letter or packet of greater weight than an ounce.

SCHEDULE (B).

Rates of Postage to be taken in the Currency of the United Kingdom for the Port and Conveyance of Letters by the Post to and from Places within Ireland, instead of the Rates in Irish Currency, under 54 Geo. III., c. 119.

For every single letter or piece of paper, from the office in Ireland where such letter or piece of paper shall be put in:	s.	d.
To any distance within Ireland not exceeding 7 miles, Irish measure	0	2
To any distance exceeding 7 miles, and not exceeding 15 miles	0	3
- - - - - 15 - - - - 25 -	0	4
- - - - - 25 - - - - 35 -	0	5
- - - - - 35 - - - - 45 -	0	6
- - - - - 45 - - - - 55 -	0	7
- - - - - 55 - - - - 65 -	0	8
- - - - - 65 - - - - 95 -	0	9
- - - - - 95 - - - - 120 -	0	10
- - - - - 120 - - - - 150 -	0	11
- - - - - 150 - - - - 200 -	1	0
- - - - - 200 - - - - 250 -	1	1
- - - - - 250 - - - - 300 -	1	2
For every distance of 100 miles, Irish measure, above 300 miles a further sum of	0	1

And for the port and conveyance of any double letter, double the said sums respectively; and for every treble letter, treble the said sums respectively; and so in proportion for any greater weight than one ounce, reckoning every quarter of an ounce equal to a single letter.

10.—REGULATION OF ALEHOUSE LICENSES.

[7 & 8 Geo. IV. c. 48.—Passed June 23, 1827.]

An Act to continue in force until the 1st day of June, 1828, and from thence to the end of the then next Session of Parliament, an Act of the third year of His present Majesty, for regulating the manner of Licensing Alehouses in England.

The act of 3 Geo. IV. c. 77, intituled "An Act for amending the Laws for regulating the manner of Licensing Alehouses in that part of the United Kingdom called England, and for the more effectually preventing Disorders therein," was continued by an act of 7 Geo. IV. c. 65, until the 1st of January, 1827, and to the end of the next session of parliament, and the same is to be further continued in force until the 1st June, 1828, and from thence to the end of the then next session of parliament.

11.—ARRESTS BEFORE TRIAL IN CIVIL CASES.

[7 & 8 Geo. IV. c. 70.—Passed July 2, 1827.]

An Act to prevent Arrests upon Mesne Process where the Debt or Cause of Action is under 20*l.*; *and to regulate the Practice of Arrests.*

1. No person shall be held to special bail upon any process issuing out of any court where the cause shall not amount to 20*l.* or upwards, exclusive of the costs incurred in suing for or recovering the same, or a part thereof; but, if the plaintiff should proceed by the way of process against the person, he shall not cause the defendant to be arrested, but shall serve him personally (within the jurisdiction of the court) with a copy of the process and proceedings thereupon. Where the cause of action shall not amount to 20*l.* (exclusive of costs, &c.) no special writ or process shall be issued from any court to compel any person to appear therein.

2. By an act of 43 Geo. III. c. 46, any person arrested upon mesne process was enabled (in lieu of giving bail) by depositing with the sheriff

the sum indorsed upon the writ, together with 10*l.* to answer the costs which might accrue up to the time of the return of the writ, and such further sum, if any, as should have been paid for the king's fine upon any original writ, to be discharged from such arrest; and it is deemed expedient to extend the provisions of that act, and enable a defendant who has been arrested, and given bail to the sheriff, or who remains in custody, (instead of putting in and perfecting such special bail,) to pay into court the sum indorsed upon the writ, together with the king's fine (if any) upon the original writ, and 20*l.* as a security for costs, to abide the event of the suit. The defendant is required to enter a common appearance, or file common bail, within the same time as he would have been required to have perfected special bail, or in default thereof, the plaintiff may enter a common appearance, or file common bail, for the defendant, and the cause may proceed as if the defendant had perfected special bail. If judgment be given for the plaintiff, he shall be entitled (by order of the court, upon motion made for that purpose) to receive so much of the money deposited as will satisfy the judgment and the costs of the application; and if judgment be given for the defendant, or the plaintiff discontinue the suit, or be otherwise barred, or if the sum be more than sufficient to satisfy the plaintiff, (by order of the court, upon motion made for that purpose,) the money so deposited, or so much as shall remain, shall be repaid to the defendant.

3. By order of the court, at any time before issue joined in law or in fact, or final or interlocutory judgment signed, a defendant may receive his deposit, previously putting in and perfecting special bail, and paying such costs to the plaintiff as the court shall direct.

4. By obtaining leave of the court, a defendant who has put in and perfected special bail, may afterwards deposit the same sum for the debt and costs which he would have deposited if he had originally elected so to do; and the court shall direct a common appearance to be entered, or common bail to be filed for the defendant, and an *exoneretur* to be entered upon the bail-piece in such cause.

5. Where the plaintiff shall proceed by original or other writ, and summons or attachment thereupon, or by subpœna or attachment, against any person not having privilege of parliament, no writ of distringas shall issue for default of appearance, but the defendant shall be served personally with the summons or attachment, at the foot of which shall be written a notice, informing the defendant of the intent of such service, which notice shall be as follows:—"C. D. you are served with this process at the suit of A. B., to the intent that you may appear by your attorney in his majesty's court of ——, Westminster, at the return hereof, being the —— day of ——, in order to your defence in this action; and take notice, that in default of your appearance, the said A. B. will cause an appearance to be entered for you, and proceed thereon, as if you had yourself appeared by your attorney." If it should appear to the court, or (in the vacation) to the judge of the court, from which the process is sued, or into which it is to be returned, that the defendant could not be personally served with the summons or attachment, and that the process had been duly executed at the place of abode of the defendant, the plaintiff may then sue out a writ of distringas to compel the appearance of the defendant. At the time of the execution of the writ of distringas, there shall be served on the defendant, if he can be met with, or if he cannot be met with, there shall be left at his dwelling-house, or other place where the distringas shall be executed, a written notice in the following form:—"In the court of —— Between A. B. plaintiff, and C. D. defendant: Take notice, that I have this day distrained upon your goods and chattels for the sum of forty shillings, in consequence of your not having appeared by your attorney in the said court at the return of a writ of ——, returnable there on the —— day of ——; and that in default of your appearing to the present writ of distringas at the return thereof, being the —— day of ——, the said A. B. will cause an appearance to be entered for you, and proceed thereon as if you had yourself appeared by

your attorney.—E. F. (name of the sheriff's officer.)—To C. D., the above-named defendant." If the defendant should not appear at the return of the original or other writ, or of the writ of distringas, or within eight days after the return thereof, the plaintiff (upon affidavit being made and filed in the proper court of the personal service of the summons or attachment, &c.) may proceed thereon as if the defendant had entered his appearance. The affidavit may be made before any judge or commissioner of the court from or to which a writ shall issue or be returnable, or else before the proper officer for entering common appearances, or before his deputy; which affidavit is directed to be filed *gratis*.

6. From and after 1st of August, 1827, all the provisions contained in 19 Geo. III., c. 70., respecting actions in inferior courts, where the cause of action shall not amount to 10*l*., shall be extended to all actions where the cause of action shall not amount to 20*l*., exclusive of costs, &c.; and that so much of any acts heretofore made for the recovery of debts within certain districts and jurisdiction, which may have authorized the arrest and imprisonment of defendants when the cause of action amounts to less than 20*l*., exclusive of costs, &c. shall be repealed from and after 1st of August, 1827.

7. No sheriff or other officer within the principalities of Wales, counties palatine of Chester, Lancaster, or Durham, shall, upon any mesne process issuing out of any of the courts at Westminster, (after 1st of August, 1827,) arrest or hold any person to special bail, unless such process be marked and indorsed for bail in a sum not less than 50*l*.

8. From and after 1st of August, 1827, no sheriff or other officer having the execution of process, shall grant any warrant for the arrest of any person, unless the writ shall, at or before the time of granting the warrant or of making the arrest, be delivered to the sheriff or other officer, by an attorney of one of the courts at Westminster, or of the courts of Great Sessions in Wales, or of the courts of the county palatine, or of the court out of which the writ issued, or by an authorized agent of such attorney; and unless the writ be indorsed by the attorney or his agent, in the presence of the sheriff or other officer, with his name and place of abode.

9. All warrants granted, and all arrests made, contrary to this act, shall be null and void. This act not to extend to any writ or process sued out by an attorney, solicitor, clerk of court, or other officer, having authority to sue out process in his own name.

10. This act not to extend to Scotland and Ireland.

12.—REGULATION OF WATERMEN, &c.

[7 and 8 Geo. IV. c. 75.—Passed June 14, 1827.]

An Act for the better Regulation of Watermen and Lightermen of the River Thames, between Yantlet Creek and Windsor.

The name and place of abode of the owner of any craft for the conveyance of goods, and also the name of such craft, to be registered by the clerk, who shall give a number for the same, and for which one shilling shall be paid, for the use of the company, for the wherry, lighter, &c. The name and number of the craft are to be painted white, on a black ground, in capital letters and figures, the figures not to be less than six inches long, and broad in proportion, and the letters not less than four inches long, and broad in proportion, or the owner thereof to forfeit, for every offence, not exceeding 40*s*. Persons not residing within the limits of this act, and who shall keep any craft for the conveyance of goods, within the limits of this act, are liable to the same regulations, or forfeit, for every offence, not exceeding 5*l*.

Every person who shall let out any boat for hire or gain, shall cause his name and place of abode to be registered, for which he shall pay, for every boat, 2*s*. 6*d*.; and shall also cause the number of such boat to be painted in figures of not less than two inches in length, and broad in

proportion, and be kept legible, or forfeit, for every offence, not exceeding 40*s*.

The court of the Company of Watermen may appoint a number of watermen to ply on Sundays, at any place at and between Chelsea and Bow Creek; and the fare to be taken shall be twopence for every person conveyed across the river.

No ferry to be appointed within two hundred yards of Vauxhall-bridge.

No person (except appointed) to ply or take on a Sunday, from any place below London-bridge, appointed as a Sunday ferry, nor to carry a passenger to either of the two plying-places, on the opposite side, next above or below the place so appointed, nor to carry a passenger usually conveyed by the ferryman, nor to any ship or craft lying within the distance of the two other plying-places, on pain of forfeiting, for every offence, not exceeding 40*s*.

The court to erect and maintain a bell at Billingsgate, and a bell at Gravesend; and to cause the bell at Billingsgate to be rung at high water, and the bell at Gravesend to be rung at the first flood. If the court neglect to erect or maintain the bells, or appoint officers to ring the same, they shall forfeit 50*l*. The officers to ring the bells for the space of fifteen minutes, or forfeit, for each neglect, not exceeding 40*s*.

If, after the ringing of the bell, any boat should not immediately proceed, without lying by in the river, or putting again on shore (within two miles of the place of starting) to receive any passengers or goods; or if such boat should not be provided with two sufficient men, besides apprentices, during the whole of the passage, the owner, or manager, to forfeit not exceeding 5*l*.

If a waterman should wilfully or negligently lose the tide, by putting on shore to receive passengers or goods, or by loitering on the passage; or if the passengers be put short of the place of destination, (sailing vessels detained by the want of wind excepted,) they shall be discharged from the payment of their passage-money, and the waterman to forfeit, for every offence, not exceeding 40*s*., and be liable to be prosecuted by the injured party.

The court of aldermen to fix the fares that may be taken for the conveyance of passengers, and to cause a list to be laid before the privy-council, who may confirm or reject the same.

Every waterman who shall *demand* and *take* for his fare, more than is allowed, to forfeit, for every offence, not exceeding 40*s*.

The court of aldermen to cause a list of fares (within thirty days after the same have been allowed) to be advertised in the London Gazette, and two London newspapers, and copies thereof to be sent to all the public offices of justice in Middlesex and Surrey.

The court of the company to cause a list of fares to be painted on boards, and affixed at or near such plying-places as the court of aldermen may direct, and to cause posts (half a mile distant from each other) to be placed on the banks of the Thames, between Chelsea-bridge and Teddington-lock, and between Greenwich-hospital stairs and Woolwich, and at any other place which may be directed, with the letters or figures thereon denoting the distance. If the court neglect to set up any such board or post, or should not within fourteen days after notice left with the clerk, that a board or post has been destroyed or removed, renew or repair the same, they shall forfeit, for every offence, the sum of 25*l*., the whole of which to go to the person who shall inform or sue for the same. If any person wilfully break or damage any post or board, or deface any part thereof, he shall be liable to be punished for a misdemeanor, and the court is to pay 20*l*. to the person who shall inform of the same, and all expenses attending the prosecution.

A list of the fares, together with such provisions of this act (if any) contained in [illegible] act, and the by-laws of the company relating to the conduct of watermen, are to be printed, and a copy thereof to be given, *gratis*, to every freeman, upon payment of his quarterage, as also a dozen

copies upon the payment of one shilling. Every waterman to have a copy in his boat, and if he should refuse to produce the same, or produce a false copy, or should not permit the same to be examined, then the passenger to be discharged from paying his fare, and the waterman to pay, for every offence, not exceeding 5*l*.

If any waterman should be at any plying-place, and wilfully avoid, or attempt to avoid, any person coming to, or being at the plying-place, for the purpose of taking a boat, or if he should omit to take such person, or should represent that he is hired, when he is not hired, or should not answer when called by the number of his boat, he is to forfeit, for every offence, not exceeding 5*l*.

If any waterman shall ply a passenger, and afterwards refuse to take him to the place directed, or shall delay him by not bringing up his boat, or shall not proceed, with due diligence and exertion, to the place directed, he is to forfeit, for every offence, not exceeding 5*l*.

If any person whatever should hinder another person from reading the name and number painted on a boat or vessel; or if any waterman should refuse to tell his christian or surname, or the number of his boat; or should give a false name or number; or make use of scurrilous or abusive language, he is to forfeit, for every offence, not exceeding 5*l*.

If any person should offend against any rule or by-law, the lord-mayor, or any justice within his jurisdiction, upon complaint being made within thirty days after the offence, shall cause the offender to be summoned to appear and answer to the complaint; and if he neglect to appear, a warrant shall be granted for his apprehension. The offender is to be examined upon the oath (or affirmation) of the complainant, or any witness, and if he be convicted, to forfeit the penalty inflicted by this act, or by the approved rules, &c. If the penalty be not forthwith paid, the same is to be levied by a distress and sale of the goods and chattels of the offender, and the overplus, (if any,) after deducting all the expenses, is to be returned, upon demand, unto the owner thereof. Unless the offender give security for his appearance on the day appointed for the return of the distress warrant, (which must not exceed seven days,) he may be kept in custody; and if no sufficient distress can be had, he is to be committed to prison, there to remain, without bail or mainprise, for any time not exceeding two calendar months, unless satisfaction be sooner made.

No officer to apprehend a waterman out of any boat or craft which he may be rowing or navigating, nor until the boat, &c. be safely moored, unless there be sufficient hands on board to manage the same.

If any person should refuse to pay a waterman his just fare, the lord-mayor or justice is to summon the offender, and if he should neglect to appear, a warrant is to be issued for his apprehension. The offender is to be examined upon the oath of the waterman, and if he be convicted, the justice is to order such sum as shall appear to be due to be paid to the waterman, and may (in his discretion) also order reasonable compensation for the waterman's loss of time and costs. If the offender should not pay the sum and costs, he is to be committed to prison for any time not exceeding one calendar month, unless satisfaction be sooner made. If any such offender should refuse to give his name or place of abode, or should give a false name or place of abode, to prevent being summoned, he shall forfeit any sum not exceeding 5*l*., and may be proceeded with, not only for the sum due, together with all expenses, but also for the payment of the penalty.

Any freeman or apprentice is competent to be a witness in any case relating to this act; and if any person should refuse to attend as a witness, either for plaintiff or defendant, (reasonable costs having been previously tendered,) he shall forfeit not exceeding 40*s*.

In all cases in which a penalty is imposed by this act, the lord-mayor, justice, or the court of the company, may determine the matter of the complaint; and if the defendant be convicted, he may be adjudged to pay the forfeiture incurred, and proceed to recover the same, although no information, in writing, shall have been exhibited.

All penalties to be paid into Waterman's Hall, one half of which is to be applied towards the payment of the expense of erecting and maintaining the boards, posts, &c., and the payment of rewards; and the other half to be distributed to the poor decayed freemen, and the widows of freemen. The lord-mayor, or any justice, or the court, may reward any witness against a convicted person, but such reward is not to exceed one-half part of the penalty.

If any person should commit any injury to a lighter, boat, or vessel, and be convicted (within three months after the commission of the offence) upon the oath of a credible witness, or of the aggrieved party, he shall make such compensation for the injury done (not exceeding 5*l.*) as shall appear reasonable to the justice. If the conviction take place on the oath of the aggrieved party, the compensation to be paid to the overseers of the place where the offence was committed. If the penalty be not paid within the time directed by the justice, the offender shall be committed to prison for any time not exceeding three calendar months, or until the payment of the penalty and costs.

Any person aggrieved by a decision of the lord-mayor, or any justice, he may appeal to the next general or quarter sessions, provided he enter into a recognizance of 20*l.* to prosecute the appeal; if the sessions be held within ten days after the conviction, such person may appeal to the following sessions. The justices at the sessions are to hear and determine the appeal, and may (at their discretion) mitigate the whole, or any part of the penalty, or confirm the conviction, with costs; and may also issue a warrant for the levying of the penalty and costs by distress and sale of the offender's goods and chattels; and if a distress cannot be had, the offender is to be committed to prison for any time not exceeding two calendar months, or until the payment of the penalty and costs.

No proceedings to be quashed for want of form, or be removed into any court at Westminster.

13.—REGULATION OF ELECTIONS.

[7 and 8 Geo. IV. c. 37.—Passed 21st June, 1827.]

An Act to make further Regulations for preventing corrupt Practices at Elections of Members of Parliament, and for diminishing the Expense of such Elections.

1. If any person shall, either during an election, or within six calendar months previous to an election, or within fourteen days after the completion thereof, be employed as counsel, agent, attorney, poll-clerk, flagman, or in any other capacity, for the purposes of such election; and shall, at any time, either before, during, or after the election, accept or take from a candidate, or from any person whatsoever, (for or in consideration of or with reference to such employment,) any sum of money, retaining fee, office, place, or employment, or promise or security for a sum of money, office, &c., such person to be deemed incapable of voting at the election, and his vote (if given) to be utterly void.

2 and 3. No person to be hereafter elected to serve in parliament shall (after the teste of the writ of summons, or after the place becomes vacant in time of parliament, before his election) by himself or agent, directly or indirectly, give or allow to any person having a vote at the election, or to any inhabitant of the city or place, any cockade, ribbon, or other mark of distinction. Every person so giving or allowing shall forfeit, for every offence, 10*l.* to the person who shall sue for the same, to be recovered in any of the courts at Westminster, wherein no essoign, protection, privilege, wager of law, or more than one imparlance may be allowed.

4. Nothing in this act to be construed to extend to Scotland.

5. No person having a right to vote at an election shall be compelled to serve as a special constable at or during the election, unless he consent so to do; and shall not be liable to any fine, penalty, or punishment, for refusing so to act as a special constable.

XXIII. PRIVATE BILLS OF THE SESSION OF PARLIAMENT, 1827.

THE alphabetical Catalogue, published amongst the *Votes* of Parliament, of the Petitions on Private Bills, and the Bills passed during the Session, furnishes a key to the progress of internal improvement, as it exhibits an authentic account of the various projects which have come before the Legislature, and have received the sanction of parliamentary authority. To understand the bearings of the documents, the numerous Bills require to be accurately classified; and a reference must also be had to the comparative number and description of Private Bills in preceding years. The following Tables present this analysis:—

I.—NUMERICAL ABSTRACT OF PETITIONS, AND PRIVATE BILLS, IN THE SESSIONS OF 1825, 1826, AND 1827.

	1825.	1826.	1827.
Petitions presented	438	287	249
Bills read first time	358	237	216
Bills read second time	329	219	202
Bills read third time	294	206	189
Bills which received the Royal Assent	286	206	185

II.—COMPARATIVE CLASSIFICATION OF THE PETITIONS, AND PRIVATE BILLS, FOR 1825, 1826, AND 1827.

	1825.		1826.		1827.	
	Petitions.	Passed.	Petitions.	Passed.	Petitions.	Passed.
Agriculture	52	28	43	24	35	26
Companies	47	11	18	6	11	5
Improvement of Towns	104	73	68	47	54	39
Internal Communication	146	108	105	83	93	63
Navigation	24	15	10	4	10	7
Private Regulation	65	51	43	42	46	45
	438	286	287	206	249	185

III.—DETAILED CLASSIFICATION OF THE PETITIONS AND PRIVATE BILLS FOR 1827.

		Petitions.	Passed.
Agriculture.	Inclosures	28	21
	Draining	4	3
	Tithes	3	2
Companies.	Gas	2	—
	Navigation and Fisheries	5	2
	Miscellaneous	4	3
Improvement of Towns.	Building Improvements	11	7
	Church^{s}, Chp^{ls}, Mk^{ts}, Bridg^{s}, Gaols, &c.	21	18
	Local Water Works	7	6
	Local Gas Works	1	—
	Local Paving and Sewers	4	1
	Municipal Regulation	10	7
Internal Communication.	Roads	70	53
	Canals	12	4
	Improvement of Rivers	2	—
	Railways	9	6
Navigation.	Harbours	7	6
	Docks	2	—
	Pier	1	1
Private Regul^{n}	Estates, Divorces, Naturalization, &c.	46	45
		249	185

XXIV. ABSTRACTS OF PARLIAMENTARY DOCUMENTS.

1.—*Finance.*

AN ACCOUNT of the NET PUBLIC INCOME of the UNITED KINGDOM of GREAT BRITAIN and IRELAND,

In the Year ended 5th January, 1828, after abating the Expenditure thereout, defrayed by the several Revenue Departments; and of the Actual Issues or Payments within the same Period, exclusive of the Sums applied to the Redemption of Funded Debt, or for paying off Unfunded Debt.

INCOME.	Income paid into the Exchequer. £.	s.	d.
Customs	17,894,405	4	1
Excise	18,438,707	4	7¼
Stamps	6,811,226	8	0
Taxes, under the Management of the Commissioners of Taxes (including arrears of Property Tax)	4,768,273	6	3
Post Office	1,463,000	0	0
One Shilling and Sixpence Duty on Pensions and Salaries; and Four Shillings in the Pound on Pensions	62,409	9	10¾
Hackney Coaches, and Hawkers and Pedlars	62,689	0	0
Small Branches of the King's Hereditary Revenue	7,696	16	6¾
Surplus Fees, of regulated Public Offices	65,995	14	0¼
Poundage Fees, Pells Fees, Casualties, Treasury Fees, and Hospital Fees in Ireland	7,172	19	4¼
Total Ordinary Revenue	49,581,576	2	9¼
Mint Repayments on account of Silver Coin	190,000	0	0
Brought from Civil List, on account of the Clerk of the Hanaper	2,500	0	0
Impress and other Monies paid into the Exchequer	388,422	18	9¼
By the East India Company, on account of Retired Pay, Pensions, &c., of His Majesty's Forces serving in India, per Act 4 Geo. IV., c. 71	60,000	0	0
By the Trustees of Naval and Military Pensions, &c.	4,245,000	0	0
Money paid by the Bank of England on account of Unclaimed Dividends	19,158	13	8
	54,486,657	15	2½
By the Commissioners for issuing Exchequer Bills for Public Works	272,877	0	10
Money repaid in Ireland, on account of Advances from the Consolidated Fund, under various Acts of Parliament	172,983	17	9½
	54,932,518	13	10

An ACCOUNT of the NET PUBLIC EXPENDITURE of the UNITED KINGDOM.

EXPENDITURE.		NET EXPENDITURE.					
		£.	s.	d.	£.	s.	d.
Dividends, Interest, and Management of the Public Funded Debt, (exclusive of 5,704,706*l.* 13*s.* 10*d.* issued to the Commissioners for the Reduction of the National Debt,) 4 Quarters, to Oct. 10, 1827	.....	27,366,601	7	0			
Interest on Exchequer Bills	.....	873,246	12	3			
					28,239,847	19	3
Trustees for Naval and Military Pension Money, per Act 3 George IV., c. 51	.....	2,214,260	0	0			
Ditto Bank of England ditto, 4 Geo. IV., c. 22	.....	585,740	0	0			
					2,800,000	0	0
Civil List, 4 Quarters, to Jan. 5, 1828	.....	1,057,000	0	0			
Pensions, ditto, to Oct. 10, 1827	.....	365,903	15	1½			
Salaries and Allowances, ditto	.....	180,896	1	5¼			
Courts of Justice, ditto	.....	148,047	8	7¼			
Mint, ditto	.....	14,750	0	0			
Bounties, ditto	.....	2,956	13	8			
Miscellaneous ditto	.....	245,459	9	11			
Ditto Ireland, ditto	.....	303,199	19	0			
For the purchase of the Duke of Athol's Interest in the Public Revenues of the Isle of Man	134,200						
Advanced towards rebuilding London Bridge, per Act 7 Geo. IV., c. 40.	120,000						
		254,200	0	0			
					2,472,418	7	9
Army	.....	7,876,682	8	2½			
Navy	.....	6,414,727	4	0			
Ordnance	.....	1,914,403	0	0			
Miscellaneous	.....	2,863,247	19	5			
					19,069,060	11	7½
Lottery Prizes	.....	193,044	0	0			
Bank of England for Discounting and Management in the Funding of 8,000,000*l.* Exchequer Bills	.....	136,267	1	3			
					229,311	1	3
					52,810,637	19	10½
By the Commissioners for issuing Exchequer Bills, per Act 3 Geo. IV. c. 86, for the Employment of the Poor	.....	551,900	0	0			
Advances out of the Consolidated Fund in Ireland, for Public Works	.....	437,753	19	9			
					989,653	19	9
					53,800,291	19	7½
Surplus of Income over Expenditure					1,132,226	14	2½
					54,932,518	13	10

NATIONAL DEBT.—Unfunded and Unredeemed Debt of Great Britain and Ireland.

1787 £249,210,896	1802 £528,839,277	1817 £848,282,479
1792...244,026,514	1807...627,936,665	1822...827,984,489
1797...374,624,763	1812...684,743,407	1827...808,367,590

AN ACCOUNT of the BALANCE of PUBLIC MONEY remaining in the Exchequer on the 5th of January, 1827; the Amount of Money raised by the Additions to the Funded or Unfunded Debt, in the Year ended 5th January, 1828; the Money applied towards the Redemption of the Funded, or paying off Unfunded Debt, within the same period; and the Money remaining in the Exchequer on the 5th January, 1828.

BALANCES in the Exchequer, 5th January, 1827			£. 5,119,555	3	9¼
CONTRIBUTIONS towards funding 8,000,000 Exchequer Bills			168,878	5	0
MONEY RAISED in the Year ended 5th January, 1828, by the Creation of Unfunded Debt.					
Exchequer Bills raised per Act 7 Geo. IV., c. 50	£ 4,333,200				
Ditto, s. 2, c. 2	10,000,000				
Ditto, 7 and 8 Geo. IV., c. 41	13,117,500				
Ditto, raised on the Credit of Sugar Duties, &c., 7 and 8 Geo. IV., c. 7	3,000,000				
Poor Bills, ditto 3 Geo. IV., c. 86	551,900				
Church Bills, ditto, 8 Geo. IV., c. 45, and 5 Geo. IV., c 103	182,300				
			31,184,900	0	0
Total			36,473,333	8	9¼
Surplus of Income over Expenditure			1,132,226	14	2¾
			37,605,560	2	11¾

APPLIED by the Commissioners for the Reduction of the National Debt, in the Redemption of Funded Debt.						
	£.	*s.*	*d.*	*£.*	*s.*	*d.*
Sinking Fund, Unredeemed Funded Debt	5,000,000	0	0			
Interest on Redeemed Funded Debt	704,706	13	10			
				5,704,706	13	10
UNFUNDED DEBT.						
Paymasters of Exchequer Bills				27,672,100	0	0
				33,376,806	13	10
BALANCES in the Exchequer 5th January, 1828				4,228,753	9	1¾
				37,605,560	2	11¾

N.B. The sum of 5,704,706*l.* 13*s.* 10*d.* was applied by the Commissioners for the Reduction of the National Debt, as follows:—

By the Purchase of Stock	4,727,345	15	10
By Cancelling Exchequer Bills to pay off Four per Cents	383,800	0	0
By Interest on ditto, charged on Sinking Fund	2,759	0	4
By Life Annuities	590,447	4	9
By fractional differences on the conversion of Irish Stock into British Currency, per 6 Geo. IV., c. 79	354	12	11
	5,704,706	13	10

2.—*Currency.*

BANK OF ENGLAND.—Average Amount of Promissory Notes and Post Bills in circulation, for the years preceding April 6, 1827, 20,969,492*l.*

Amount of Notes under 5*l.* (there being none of 1*l.*) in circulation, June, 1827, 531,119*l.*

BANKS OF SCOTLAND.—Small Notes in circulation in 1826, 203,920*l.*

COUNTRY BANKS.—Aggregate Amount of Notes stamped:

1822 . . .	£. 4,293,164
1823	4,479,448
1824	6,724,069
1825	8,755.309
1826	1,497,872

IRELAND.—Country Bank Notes Stamped.

1819 £1,683,038	1821 £576,049	1823... £463,194	1825 £2,108,508
1820... 989,093	1822...619,414	1824... 1,122,142	1826...1,185,284

COINAGE.—Money coined at the Mint during 1826:
Gold 5,896,641*l.* Silver 608,605*l.*

NOTE.—The following are the *Weights of the English Coinage*:—

Weights of the English Coinage.

	oz.	dwt.	gr.		dwt.	gr.
Sovereign.....	0	5	3.274	Sixpence.....	1	19 7-11ths
Half Sovereign.....	0	2	13.637	Shilling.....	3	15 3-11ths
Double Sovereign. ..0		10	6.549	Half-Crown	9	2 2-11ths
Five Sovereign 1		5	16.370	Crown.....18		4 4-11ths

The Mint value of a pound troy of Gold is 44 Guineas and a half, or 46*l.* 14*s.* 6*d.*, and the ounce 3*l.* 17*s.* 10½*d.*

The pound troy of Silver of the old standard is coined into 66 shillings, instead of 62 shillings as formerly.

We subjoin a *Table of the Value of Foreign Money, in English Currency*, sufficiently accurate for ordinary purposes:—

Value of Foreign Money, in English Currency.

		£.	s.	d.			£.	s.	d.
Sol	French	0	0	0½	Florin . . .	Flanders	0	1	8
Sous . . .	Ditto	0	0	1	Ducat . . .	Ditto	0	9	3
Livre and Franc	Ditto	0	0	10	Rix Dollar .	German	0	3	6
Louis, or Napoleon . . .	Ditto	0	16	8	Rix Dollar (24 Groschen) .	Prussian	0	3	4
Louis d'Or .	Ditto	1	0	0	Rix Dollar .	Holland	0	4	6
Rial	Spanish	0	0	5¼	Stiver . . .	Ditto	0	0	1¼
Ducat . . .	Ditto	0	6	9	Guilder . . .	Ditto	0	1	9
Piastre . . .	Ditto	0	3	7	Rupee . . .	Bombay	0	2	3
Dollar . . .	Ditto	0	4	6	Gold Rupee .	Ditto	1	15	0
Pistole . . .	Ditto	0	16	9	Rupee . . .	Bengal	0	2	6
Crusade of Exch.	Portugal	0	2	0	Pagoda . . .	Ditto	0	8	9
Moidore . .	Ditto	1	7	0					

3.—*Trade and Manufactures.*

An Account of the Official Value * of British and Irish Produce and Manufactures, and of Foreign and Colonial Produce and Manufactures, *Exported* from *Great Britain*, distinguishing the several Countries; together with the Imports into Great Britain from the same Countries; for the year ending 5th January, 1827.

COUNTRIES.	Year ending 5th January, 1826.			
	Official Value of Imports into Great Britain.	Official Value of Exports from Great Britain.		
		British and Irish Produce and Manufactures.	Foreign and Colonial Merchandise	Total Exports.
	£.	£.	£.	£.
EUROPE, exclusive of Ireland:				
Russia	3,678,585	1,318,233	745,386	2,063,620
Sweden	209,257	65,202	101,988	167,191
Norway	109,849	80,191	34,382	114,574
Denmark	364,777	159,740	122,055	281,796
Prussia	1,062,470	192,489	384,829	577,319
Germany	2,484,767	6,126,196	1,691,357	7,817,553
United Netherlands	1,938,335	2,732,040	1,785,797	4,517,838
France	1,805,002	279,175	892,295	1,171,470
Portugal, the Azores, and Madeira	787,267	2,146,029	66,539	2,212,569
Spain, and the Canaries	1,372,957	362,983	106,703	469,687
Gibraltar	147,489	1,429,433	280,854	1,710,288
Italy	1,898,917	2,754,893	374,142	3,129,035
Malta	54,902	230,607	43,186	273,793
Ionian Islands	113,517	8,950	2,721	11,672
Turkey, and the Levant	1,207,035	1,079,671	72,283	1,151,954
Isles Guernsey, Jersey, Alderney and Man	225,751	264,793	116,276	381,069
ASIA: †	17,460,884	19,230,632	6,820,800	26,051,433
East Indies and China	6,582,074	3,407,660	537,303	3,944,964
New Holland & South Sea Islands	28,970	169,440	76,140	245,580
AFRICA:				
Cape of Good Hope	181,616	198,771	26,447	225,219
Other parts of Africa	211,713	224,908	180,931	405,840
AMERICA:				
British Northern Colonies	1,084,463	1,770,972	380,489	2,158,462
British West Indies	7,427,909	4,433,629	293,002	4,726,631
Foreign West Indies	1,060,154	1,458,175	86,085	1,544,260
United States	5,716,252	7,351,933	275,341	7,627,274
Brazil	1,818,281	4,116,129	80,743	4,196,872
Mexico	152,341	1,160,770	248,586	1,409,356
Guatimala		1,068	297	1,365
Columbia	88,660	605,406	45,697	651,103
Peru	36,653	736,797	43 699	781,496
Chili	54,884	617,326	27,924	645,250
Buenos Ayres and Monte Video	477,875	968,315	28,792	997,107
The Whale Fisheries	278,319	85	3,022	3,107
Total, exclusive of Ireland	42.661,055	46,553,021	9,155,305	55,601,327
IRELAND	6,543,851	3,837,331	1,437,708	5,275,040
Grand Total	49,204,905	50,290,353	10,593,014	60,883,367

* The official value of goods, which has been retained for a century in the public accounts, has no reference to the real value of the goods, and is used to exhibit the increase or decrease of trade. The official value was formerly 50 per cent. *less* than the real;—it is now affirmed to be considerably *more*.

† In the above abstract the fractions of pounds are omitted, which will produce a slight apparent error in the total.

An Account of the Value of the IMPORTS into, and of the EXPORTS from, the *United Kingdom* of Great Britain and Ireland, during each of the three years ending the 5th January, 1827; calculated at the Official Rates of Valuation.

Years ending 5th January.	Value of Imports into the United Kingdom, calculated at the Official Rates of Valuation.	Value of Exports from the United Kingdom, calculated at the Official Rates of Valuation.		
		Produce and Manufactures of the United Kingdom.	Foreign and Colonial Merchandise.	Total Exports.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
1825.....	37,558,176 4 10	48,730,466 4 7	10,204,785 6 4	58,935,251 10 11
1826.....	44,208,907 7 0	47,150,689 12 11	9,169,494 8 3	56,320,184 1 2
1827.....	37,714,021 15 1	40,965,030 14 0	10,079,627 8 1	51,044,658 2 1

Official Value of the principal Articles *exported* from, and *imported* into, the United Kingdom, for the year ending January 5, 1827.

IMPORTED.		EXPORTED.	
Butter	£. 273,326	Cottons and Hosiery	£. 25,395,288
Coffee	2,579,346	Linens	2,230,442
Corn, Meal, and Flour	2,120,927	Woollens	5,050,594
Flax	1,376,836	Silk Manufactures	107,022
Hemp	413,745	Haberdashery	406,599
Hides, untanned	569,305	Hats	154,169
Indigo	1,084,750	Leather and Saddlery	205,205
Silk, raw and thrown	1,276,398	Earthenware	79,976
Spirits	619,226	Glass	121,248
Sugar	6,055,956	Brass & Copper Manufactures	524,948
Tallow	937,043	Iron and Steel, wrought and unwrought	1,328,488
Tea	2,984,040	Lead and Shot	107,736
Timber	681,191	Tin, unwrought, and Wares	400,986
Tobacco	252,214	Hardwares and Cutlery	563,706
Wine	879,593	Coals and Culm	299,183
Wool, Cotton	5,822,631	Salt	218,574
——— Sheep's	479,495	Beef and Pork	112,123
		Butter and Cheese	147,777
		Soap and Candles	153,936
		Sugar, refined	924,718

SHIPPING.—Total Number of Vessels, with the Amount of their Tonnage, and the Number of Men and Boys employed in navigating the same, that entered inwards and cleared outwards, from and to all parts of the world, in 1814-17-20-23-26, distinguishing the British from the Foreign.

Years.	BRITISH. Vessels.	Tons.	Men.	FOREIGN. Vessels.	Tons.	Men.
Entered Inwards from all parts of the World.						
1814	16,065	1,846,670	114,049	5109	566,516	35,581
1817	18,707	2,240,675	131,901	3163	401,792	24,745
1820	18,586	2,270,400	135,195	3258	408,401	25,472
1823	20,303	2,469,053	154,958	3806	534,674	31,329
1826	18,960	2,478,047	151,327	5439	643,922	37,137
Cleared Outwards to all parts of the World.						
1814	16,654	1,875,855	116,564	4452	571,413	33,198
1817	19,754	2,249,206	136,947	2674	396,164	22,981
1820	18,177	2,270,663	134,323	2739	390,901	22,211
1823	19,177	2,297,975	140,291	3179	515,774	26,844
1826	21,874	2,676,263	163,027	5129	641,106	34,600

WOOL.—Quantity of Foreign Wool Imported into, and Exported from, the United Kingdom, in each of the last seven years.

Year.	Imported. lbs.	Exported. lbs.	Year.	Imported. lbs.	Exported. lbs.
1821	9,794,620	64,585	1825	22,572,617	419,594
1822	16,632,028	291,318	1826	43,837,961	678,034
1823	19,072,364½	233,872	1827	15,996,425	888,651
1824	19,378,249½	200,776			

Quantity of English Wool Exported from the United Kingdom, in each of the last seven years.

Pounds of English Wool in the Years						
1821	1822	1823	1824	1825	1826	1827
39,166	43,347	45,723	34,986	66,383	189,385	165,467

TOBACCO.—Quantity of Leaf Tobacco, Snuff, and Segars, paid Duty upon, from October, 1825, to October, 1826, with the Amount of Duty upon the same, in each of the three Kingdoms.

	Quantity. lbs.	Duty. £	s.	d.
England, year ended October, 1826	12,504,707	1,884,358	12	10
Scotland	1,786,000¾	267,916	14	6
Ireland	4,111,678	614,696	10	6
United Kingdom, year ended Oct. 1826	18,402,385¾	2,766,971	17	10

Quantities of **FOREIGN SPIRITS** imported for Home Consumption into the United Kingdom, in the years 1824-5-6.

Years.	Rum. Imp. Galls.	Brandy, Geneva, &c. Imp. Galls.	Total.
1825	2,552,289	1,317,641	3,869,930
1826	2,095,591	1,409,686	3,505,277
Ending Jan. 5. 1827	4,305,419	1,549,842	5,855,261

MALT AND SPIRITS.—Number of Bushels of Malt made in each of the three Kingdoms, from October, 1825, to October, 1826, with the Amount of Duties paid thereon.

	Bushels.	Duty. £	s.	d.
England	29,359,164	£3,804,113	16	10
Scotland	3,172,327	390,890	4	8
Ireland	2,673,002	305,329	14	5
Total	35,204,493	4,500,333	15	11

Number of Gallons of Spirits, at Hydrometer Proof, imported into England, from Scotland and Ireland, from January 1, 1826, to July 5, 1826.

	Gallons Imported into England from Scotland.	Ireland.
From January 1, to July 5, 1826	2,022,373⅓	748,954 7/12

BEER.

Number of Bushels of Malt used by the Brewers and Victuallers in each of the three Kingdoms, in the year 1826: and the Number of Barrels of Beer made therefrom.

	Barrels of Malt.	Number of Barrels made. Strong.	Table.	Intermediate.
England	21,396,103	6,806,835	1,610,531	6858
Scotland	482,014	120,404	255,770	...
Ireland	1,364,938	...	...	...
Total	23,243,055	6,927,239	1,866,201	6858

HOPS.—Number of Acres of Land in Great Britain, under cultivation of Hops, in the Year 1826.....50,471 1/12

CORN—Average Prices per Quarter, in England and Wales, in each Month of the Year 1827.

1827.	Wheat. Per Qr.	Barley. Per Qr.	Oats. Per Qr.	Rye. Per Qr.	Beans. Per Qr.	Peas. Per Qr.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January ...	55 1	36 0	28 8	40 10	47 3	50 0
February ..	55 3	38 1	29 2	40 6	48 6	50 3
March.....	57 4	38 3	31 3	39 2	49 10	51 4
April.....	57 11	39 4	31 4	41 2	48 9	49 1
May	58 4	40 8	31 3	41 3	49 8	49 2
June.....	59 10	41 8	29 5	43 10	51 8	49 9
July	61 9	41 8	29 4	44 9	51 8	50 1
August	59 10	37 0	27 1	39 0	50 1	43 5
September	56 9	33 0	24 3	34 9	45 9	44 3
October ...	52 9	30 4	22 10	32 2	42 4	47 0
November .	52 8	31 5	22 2	34 7	43 3	45 10
December..	52 0	30 8	22 1	32 9	42 0	44 0

FIRE INSURANCES.—Amount of Duties on Policies for Fire Insurance, in the United Kingdom.

Years.	*l.*	*s.*	*d.*	Years.	*l.*	*s.*	*d.*
1811 at 2s. 6d. per cent.	458,381	9	1½	1821 at 3s. pr. ct.	612,056	8	2
1816 at 3s. per cent.....	585,472	14	0	1826... Ditto...	727,707	16	3¼

EAST INDIA COMPANY.—Annual Account to May 1827.

Territorial Receipts	£100,743	17	1
Commercial Ditto	8,357,242	1	6
Total.....	8,457,985	18	7
Territorial Payments	£3,265,626	11	0
Commercial Ditto.....	5,709,530	12	9
Total Payments.....	8,975,157	3	9
Territorial and Political Debts.....	£11,354,526	0	0
——— Assets.....	2,308,108	0	0
Territorial Assets deficient.....	9,046,418	0	0
Commercial Assets.....	£22,952,384	0	0
——— Debts.....	2,300,228	0	0
——— Assets in favour.....	20,652,156	0	0

4. LAW—*Civil and Criminal.*

CAUSES entered for Trial in the Courts of King's Bench, Common Pleas, and Exchequer.

Year.	King's Bench.	Common Pleas.	Exchequer. Plea Causes.	Exchequer. Revenue Causes.
1820 ...	1694 ...	486 ...	55 ...	144
1821 ...	1578 ...	508 ...	60 ...	93
1822 ...	1662 ...	470 ...	66 ...	136
1823 ...	1474 ...	445 ...	49 ...	113
1824 ...	1695 ...	472 ...	73 ...	149
1825 ...	2164 ...	500 ...	51 ...	106
1826 ...	3112 ...	1021 ...	150 ...	95
Total ...	13,379 ...	3902 ...	...	1346

BANKRUPTCY.—Number of Dockets struck; Commissions sealed, opened, gazetted, and superseded; and number of Certificates and Petitions, from October 1, 1816, to October 1, 1826.

	Dockets struck.	Commissions sealed.	Dockets not acted upon.	Commissions opened and gazetted.		Differ. between Commissions sealed & opened.	Superseded.	Certificates.	Petitions.
				London.	Country.				
1817	2,480	2,311	169	695	1,184	432	178	1,482	638
1818	1,338	1,248	90	459	600	189	905	979	555
1819	2,054	1,913	141	698	728	497	146	993	554
1820	1,903	1,784	119	595	740	449	144	1,080	595
1821	1,773	1,665	108	557	730	378	132	987	619
1822	1,592	1,488	104	487	677	324	124	893	550
1823	1,381	1,273	108	490	474	309	102	753	498
1824	1,340	1,244	96	557	420	267	165	749	540
1825	1,345	1,226	119	549	297	380	91	722	543
1826	3,549	1,272	277	1,243	1,246	783	276	1,281	832
	18,755	17,424	1,331	6,320	7,096	4,008	1,403	9,915	6,924

INSOLVENCY.—Number of Persons who have taken the benefit of the Acts for Relief of Insolvent Debtors, 1814, to March 31, 1827.
Total.....50,733.

CRIME.—Number of Persons Committed, Convicted, Sentenced, Acquitted, &c. during the last seven years.

Committed for Trial	95,611	Males	80,304
		Females	15,307
Convicted and Sentenced			
Death	7656		
Of whom were Executed			528
Transportation for Life	1000		
——— various terms	12,027		
Imprisoned, and severally to be whipped, fined and kept to hard labour, &c. for various terms	42,488		
Whipping and Fine	1832		
Total Convicted	65,003		
Acquitted	18,505		
No Bills found and not prosecuted	12,103		
Total	95,611		

Number of Persons Convicted, Acquitted, &c. during the last seven years.

Years	1820	1821	1822	1823	1824	1825	1826
Convicted	9318	8788	8209	8204	9425	9964	11,095
Acquitted	2511	2501	2348	2480	2611	2788	3266
No Bills found & not prosecuted	1881	1826	1684	1579	1662	1685	1786
No. Committed	13,710	13,115	12,241	12,263	13,698	14,437	16,147

Number of Persons Sentenced to Death, and Executed, during the last Seven Years.

In the Years	1820	1821	1822	1823	1824	1825	1826
Sentenced to Death	1236	1134	1016	968	1066	1036	1200
Executed	107	114	97	54	49	50	57

5. POOR RATES and COUNTY RATES.—An Account shewing the Amount levied by Assessment for Poor Rates and County Rates in each County of England and Wales, in the year ending March 25, 1826, distinguishing the amount levied on Land, Dwelling-houses, Mills, Factories, and Manerial Profits.

Counties.	Land.	Dwelling Houses.	Mills, Factories, &c.	Manerial Profits, &c.	Total.
ENGLAND.	£ s.	£ s.	£ s.	£ s.	£ s.
Bedford	77,920 1	6,298 7	567 19	183 2	84,969 9
Berks	89,595 17	21,013 15	2,446 1	838 15	113,894 8
Buckingham	123,470 0	17,495 9	2,702 7	247 17	143,915 13
Cambridge	85,612 7	14,427 0	1,049 2	143 7	101,231 16
Chester	88,606 3	20,592 1	5,314 19	1,752 1	116,265 4
Cornwall	85,979 8	14,016 10	1,857 13	7,408 9	109,262 0
Cumberland	40,764 14	12,378 4	713 18	1,129 9	54,986 5
Derby	71,375 11	12,735 6	2,128 1	1,454 11	87,693 9
Devon	180,872 18	47,898 3	3,925 5	3,396 8	236,092 14
Dorset	74,811 8	17,169 12	750 2	914 6	93,645 8
Durham	63,296 11	16,667 13	3,624 0	11,442 6	95,030 10
Essex	243,111 17	42,761 5	6,828 11	1,368 17	294,070 10
Gloucester	100,117 1	49,016 12	4,961 14	1,455 16	155,551 3
Hereford	58,623 1	6,735 16	86 0	35 4	65,480 1
Hertford	74,926 13	23,110 8	2,775 13	512 9	101,305 3
Huntingdon	38,911 19	5,504 4	570 1	96 11	45,082 15
Kent	253,374 14	103,583 16	11,660 3	3,327 2	371,945 15
Lancaster	168,421 11	118,260 10	50,460 14	12,525 9	349,668 4
Leicester	93,881 14	17,634 5	781 12	310 5	112,607 16
Lincoln	174,765 12	23,305 13	3,887 8	886 11	202,845 4
Middlesex	57,221 3	509,364 13	36,352 12	786 11	603,724 19
Monmouth	25,601 19	4,205 12	790 12	1,214 6	31,872 9
Norfolk	240,525 17	49,084 17	8,097 1	3,923 12	301,631 7
Northampton	131,644 3	12,372 10	535 15	1,022 8	145,574 16
Northumberland	50,834 0	15,232 13	8,773 19	2,981 4	77,821 16
Nottingham	52,624 14	24,123 13	2,971 6	291 9	80,011 2
Oxford	109,305 13	21,863 1	1,148 16	469 4	132,786 14
Rutland	10,960 2	847 0	74 19	7 4	11,889 5
Salop	72,763 1	14,515 8	1,227 7	2,247 4	90,753 0
Somerset	141,247 4	30,305 15	2,380 0	3,041 13	176,974 12
Southampton	165,601 12	46,174 0	3,374 10	665 13	215,815 15
Stafford	85,669 14	34,962 18	6,654 15	7,129 4	134,416 11
Suffolk	221,332 1	36,524 17	4,398 8	711 19	262,967 5
Surrey	80,357 2	144,064 0	22,983 5	2,645 8	250,049 15
Sussex	214,304 1	42,752 2	4,609 12	465 12	262,131 7
Warwick	94,842 6	49,392 14	10,674 5	3,082 9	157,991 14
Westmorland	24,185 13	2,830 17	496 6	102 17	27,615 13
Wilts	157,230 19	24,662 0	3,234 5	1,321 6	186,448 10
Worcester	62,888 4	15,892 3	3,111 8	2,092 0	83,983 15
Yorks East Riding	71,529 16	32,414 0	2,337 17	3,477 18	109,759 11
Yorks North do.	83,522 16	8,204 11	1,207 11	668 12	93,603 10
Yorks West do.	180,597 4	78,471 14	23,269 2	5,782 4	288,120 4
Tot. of England £	4,523,288 4	1,788,865 7	255,774 14	93,558 12	6,661,486 17
WALES.					
Anglesey	15,581 18	1,490 9	268 11	1 0	17,341 18
Brecon	17,566 14	1,533 7	138 10	150 14	19,389 5
Cardigan	17,578 3	915 13	88 19	2 4	18,584 19
Carmarthen	31,697 13	2,872 16	428 16	277 19	35,277 4
Carnarvon	17,860 1	3,516 9	165 19	233 16	21,776 5
Denbigh	36,011 1	1,917 16	377 17	182 0	38,548 14
Flint	19,447 5	1,789 19	745 10	318 17	22,301 11
Glamorgan	30,197 6	4,878 15	1,081 1	2,096 5	38,253 7
Merioneth	16,226 3	214 4	13 18	. . . . .	16,454 5
Montgomery	32,694 11	2,210 9	373 11	45 12	35,324 3
Pembroke	23,226 9	3,600 2	91 17	14 17	26,933 5
Radnor	14,106 8	362 17	15 10	. . . . .	14,484 15
Total of Wales £	272,193 12	25,362 16	3,789 19	3,323 4	304,669 11
Total of England & Wales £	4,795,481 16	1,814,228 3	259,564 13	96,881 16	6,966,156 8

6. *Public Health, Morals, and Intelligence.*

VACCINATION.—The Annual Report of the National Vaccine Board states, that in 1826 only 503 persons died of Small Pox within the Bills of Mortality, while in 1825, 1299 died of that disease;—and that previous to the introduction of Vaccination the annual deaths by Small Pox within the Bills of Mortality were 4000.

SAVINGS' BANKS AND FRIENDLY SOCIETIES.—The Sums received and paid on Account of Banks for Savings and Friendly Societies in Great Britain and Ireland, from Aug. 5, 1817, to Nov. 20, 1826; made up pursuant to 5 Geo. IV. c. 63.

From Aug. 6, 1817 to Nov. 20, 1826.	Amount of all sums received from Savings' Banks and Friendly Societies, including interest placed to their cred.	Amount of all sums paid to Savings' Banks and Friendly Societies, including interest.	Amount of interest received by the Commissioners.	Amount of interest paid to Savings' Banks and Friendly Societies.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Great Britain.	14,238,856 14 6	1,733,279 19 2	2,146,440 5 3	2,573,574 14 6
Ireland. . . .	1,123,830 6 3	392,849 1 8	104,048 3 8	128,993 7 9
	15,362,687 0 9	2,126,129 0 10	2,250,488 8 11	2,702,568 2 3

IRELAND—EDUCATION.

Total Number of Schools	11,823
Masters and Mistresses	12,530
Total Number of Children.....	568,964

According to these Returns, the total number of Protestant Children, of all denominations, thus educated, was to that of the Roman Catholic Children, as one to three, nearly; the number of the Children of the Established Church are nearly twice the number of the Protestant Dissenters; and of the whole number of Dissenters about twenty-five out of twenty-six are in the province of Ulster. The proportion of Males to Females was nearly as seven to four.

BRITISH MUSEUM.—Number of Persons admitted to view the Museum, from 1820 to 1826.

1820	1821	1822	1823	1824	1825	1826
62,543	91,151	98,801	89,825	112,840	127,643	123,302

NEWSPAPERS—Amount of Duty received for Stamps on Newspapers in the United Kingdom.

Year.	England.	Scotland.	Ireland.	Total.
1797	£144,940 14 10	£9,482 12 9	No separate	£154,423 7 7
1801	173,857 14 10	11,948 5 0	Account of News-	185,805 19 10
1806	234,176 3 10	15,921 1 8	paper Stamps	250,097 5 6
1811	281,050 3 11	17,497 8 0	kept in Ireland	298,547 11 11
1816	285,064 16 4	13,372 19 0	previous to 1817.	298,437 15 4
1821	319,897 5 6	15,856 7 4	£22,346 9 7	358,100 2 5
1826	347,877 11 10	17,619 8 0	25,187 11 9¼	390,684 11 7¼

Number of Stamps issued for Newspapers.

1801	15,090,805	994,280	No Return.
1826	25,684,003	1,296,549	3,473,014

XXV. BRIEF NOTICE OF THE PROGRESS OF PUBLIC EDIFICES.

THE limits of the Companion necessarily preclude anything like a critical account of the numerous buildings which have been either commenced, advanced, or completed during 1827. We shall, however, shortly recapitulate the most important works, noticing one or two in detail.

1. *Churches.*—The Commissioners appointed under an "Act for building and promoting the building of Additional Churches in populous parishes," report to Parliament, that 69 New Churches and Chapels have been completed, which afford accommodation for 107,200 persons (including 59,655 free seats); that 48 Churches and Chapels are in progress;—that they have under consideration plans for 26 other Churches and Chapels;—and that altogether they have determined on, and made provision for, 199 additional Churches and Chapels, including those built and building. The Commissioners have also made grants in aid of building 100 other Churches and Chapels.

2. *Charitable Institutions.*—An enlarged and more commodious *Hospital* is building in Grosvenor Place, upon ground situated behind the present *St. George's Hospital*, which is to be pulled down. An extensive *County Hospital for Sussex* is building at Brighton.

3. *Government Buildings for Official Purposes.*—The *Treasury Buildings* at Whitehall have been in part completed, and are now opened for public uses. The court of the Privy Council forms a portion of these. The repairs of the *Custom House* are rapidly proceeding. The *Post Office*, which comprises a very large range of building, is nearly completed.

4. *Palaces and Parks.*—The splendid repairs of *Windsor Castle* are nearly completed on the east and south sides, and in great part on the north, so that the Palace will be soon fit for a Royal residence. A new *Palace* has been in great part erected at *Pimlico*, but is likely to be materially altered. *Hyde Park* has been materially improved by roads and draining; and *New Entrance Gates* have been erected, as well as an elegant *Bridge* over the Serpentine. *St. James's Park* is newly laid out in ornamental walks for the public accommodation; and mansions are building on the site of the gardens of Carlton Palace, now pulled down.

5. *Buildings connected with Science and Literature.*—The New Buildings at the *British Museum*, for the reception of the King's Library and the Manuscripts of that Institution, are nearly ready for the public accommodation. The new Library is a room of great extent and magnificence. *The London University* is advancing with great rapidity, a large part of the building being

roofed in. The following account of this important edifice is given by the Council:—

"The Council obtained designs from several Architects of eminence, and finally adopted that of William Wilkins, Esq., R. A. The plan consists of a central part 430 feet in length, with two wings, forming together three sides of a quadrangle, the central portico looking westward, and standing on the eastern side of an area of above seven acres of freehold ground, between Upper Gower Street and the New Road. That part of the edifice which is now building is to contain Four Theatres for Lectures, each capable of accommodating 440 Students; Two Lecture Rooms that will accommodate 270 Students each; Five Lecture Rooms that will accommodate about 170 each; a Library and Museum, each 118 feet long by 50 in breadth, and 23 feet in height; a Hall for public occasions, 90 feet long by 45 in breadth, and 23 feet in height; an Anatomical Museum; a complete suite of rooms for the Professors and Students of Anatomy and Surgery; a Laboratory and Apparatus Rooms for the Professor of Chemistry; Rooms for the reception of the Apparatus of the Professor of Mechanical Philosophy; several smaller apartments for the accommodation of the Council, Professors, and Officers of the Establishment. As most of the Students will remain at the University the greater part of the day, from an early hour in the morning, care will be taken to provide due accommodations for their comfort, during the intervals between one Lecture and another. There will be two large Rooms for their use; and they will also have the Library and Museum, besides a range of cloisters 213 feet long by 24 feet in breadth. There will also be, in the basement story, a range of apartments intended to be fitted up with a view of affording the Students the convenience of obtaining refreshments. There will be no Professors' houses and no rooms for Students within the precincts of the University."

The Gardens of the Zoological Society are now open.

6. *Public Exhibitions.*—An immense building in the Regent's Park, called the *Coliseum*, is nearly completed, exhibiting a Panoramic View of London. The ***Lyceum Theatre*** has been fitted up in a foreign style, for French Plays. A new and very elegant Theatre has been built near Goodman's Fields, called the ***Brunswick Theatre***, upon the site of the Royalty Theatre, burnt down in 1826. The design, by Stedman Whitwell, Esq., is a remarkable example of ingenious arrangement, and of novel applications of the principles of acoustics to the wants of an audience.*

7. *Docks, Bridges, &c.*—The great work of St. Katharine's Docks is proceeding rapidly. ***London Bridge*** has several arches completed. Two other remarkable works are the ***Hammersmith Suspension Bridge***, and the ***Thames Tunnel***, which, being curious as examples of mechanical art, we shall notice rather fully:—

* The iron-roof of this Theatre fell in, on the 29th February (the day the first edition of this book was published), in consequence, as is stated by the architect, of an improper suspension of machinery and other heavy weights upon the tie-beams.

Suspension-Bridge across the Thames, at Hammersmith.

It is remarkable that, until the present instance, all the specimens of Bridge-building upon this principle have been executed at a distance from the metropolis; but, at length, the most important river of the country has had one thrown over it by a company of proprietors who were incorporated in the 5th year of his present Majesty, and empowered to raise a capital, and levy tolls at the rate of 8*d.* for a carriage and two horses, and of a half-penny for each foot-passenger. They have laid out more than 180,000*l.* The Bridge, designed by Mr. Tierney Clarke, Civil Engineer, and the execution of it superintended by him, was opened for the first time on the 6th October. Two piers, or suspension towers, 400 feet from each other, and about 143 feet from either shore, have been built in the river, where at this place it is about 750 feet wide. No other obstruction to the water-way is produced than the thickness of these towers, which are about 22 feet each. The road-way is slightly curved upwards, and is fixed at 16 feet above the level of high-water-mark. The suspension towers are of stone, 48 feet high above the road-way, making a total height of 64 feet above the highest level of the river. From nearly the summits of these, eight wrought-iron chains descend, and are attached to the shores on one side, and dipping 29 feet in their course from one tower to the other, support, by means of vertical rods, the road-way between them. This is of timber and covered with granite, having a carriage-path of 20 feet wide, which passes through the towers by an archway and two foot-paths of 6 feet each.

The total weight of metal employed in this beautiful edifice was 472 tons 2 cwt. 1 qr. 24 lbs. Capt. Brown, R. N., who has so long and so successfully been engaged in constructions of this nature, was the person who contracted for making and fixing the chains. Part of the iron-work was prepared at the Newbridge Iron-works, near Cardiff, (Messrs. Brown, Lenox and Co.) under the direction of Mr. Philip Thomas; part at the Brierly Hill works under Mr. Harrison; and part at the Gospel Oak works, (Messrs. Walker) under Mr. Yates. The strength and soundness of the whole was proved at the establishment of Messrs. Brown, Lenox and Co., Mill Wall, near London, where each link was required to bear, uninjured, a weight of 45 tons. The length of the chains themselves, from the outer face of one retaining or shore pin, to that of the other, is 841 feet, 7 inches, being 18 feet, 11 inches longer than the straight line or chord.

Tunnel under the Thames, from Rotherhithe to Wapping.

This bold attempt to effect a communication between the shores of a wide and deep river, without any interruption to its navigation, has had, and probably will have, no parallel for many ages. When, and where, are likely again to combine the necessities, physical and

commercial, the resources pecuniary and scientific, the rational hope of remuneration, and the courage and energy necessary to the conception and production of such a work? In 1823, Mr. Brunel, an engineer of eminence, undismayed by the failure of some attempts which had been directed to the same end, completed a design for the execution of a tunnel beneath the river Thames, in which it was proposed to effect the desirable objects of making the whole excavation with safety to the workmen, and following it close with water-proof masonry, to secure, immediately and permanently, every foot of advance that should be made. A general idea of the means proposed by the engineer may be obtained, by supposing a hollow box, of sufficient strength for its purpose, open to the rear but closed on the front with moveable boards, and large enough to contain one man at work. The front is placed against the face of the earth to be removed, and separates the workman from it. By means of the moveable boards he can expose any part of the earth at his discretion. When he has removed one board he excavates the earth which was behind it to the depth directed, and places the board against the new vertical surface exposed. The board is then in advance of the box, and is kept in its place by props which have their support in the rear. When he has thus proceeded with all the boards, it will be evident that an excavation will have been made equal to the area of the front of the box, and of a certain depth; and that the boards will be all in advance equal to this depth, and held there, disengaged from the box. The box is then by screws, pushed forward to the boards; and the operation of excavation recommences. The brickwork is immediately executed up to the box, and the security of the work is complete. When the area of the excavation is proposed to be large, as in the case of the present Tunnel, a number of similar boxes is required. Their size is not increased, but they are arranged side by side to the width intended, and tier on tier, to the height proposed. Those which are over each other are attached so as to be moved together in one vertical group, and have no connection with the others on their sides. To the whole assemblage, Mr. Brunel has given the name of *shield*. In large excavations the whole shield is not moved forward at once; any one of the vertical groups may be advanced independently of any other, and the mode adopted is, to push on the alternate ones equally to a certain distance in front, and then to bring up and advance those left behind through the intervals of the first, and so on alternately.

The cost of a Tunnel beneath the Thames, so executed, Mr. Brunel estimated at 160,000*l*., and statements were made of a probable revenue which would justify the risk of a much larger sum.

The engineer and his design were not long without patrons; and a bill to incorporate a company for the execution of this proposition under Mr. Brunel's superintendence, received the Royal assent on the 24th June, 1824. The examination of the bed of the river; the selection of the most eligible position; the purchase of property; the preparation of the novel machinery, &c. &c., occupied the rest of that year.

Early in the year 1825, the shaft was begun, which was necessary to be sunk on the Rotherhithe shore, in order to get down to the level of the intended works at that end of the Tunnel. Though the principle of operation used in sinking this shaft was familiar to every well-sinker and miner, its magnificent diameter and the proportionate dimensions of all its works, demanded a more than ordinary degree of skill and intrepidity on the part of the engineer. A tower or cylinder of brick-work 50 feet in diameter, the walls of which were 3 feet in thickness and 40 feet high, and resting on a circle of cast-iron, having its lower edges chisel-shaped, was built with the utmost care on the surface of the ground, and immediately over the intended situation of the shaft. In the upper part was suspended a steam-engine of 36 horse power, with boiler, fire-place, &c. for the purpose of drainage, and of lifting the excavated earth to the surface. On the 2nd of March, 1825, Wm. Smith, Esq., M.P. for Norwich, laid the first brick of the tower, and on the 1st of April following, the excavation commenced within its inclosure. As they proceeded, this immense structure, with its engine, &c. descended, without accident, and continued to do so for twenty days, through successive strata of gravel, &c., until at 37 feet from the surface it rested upon a solid bed of clay. It was there permitted to remain, but the excavation was continued, and the cylinder under-built to the depth of 24 feet. At this level, the diameter was reduced to 25 feet, and another cylinder inserted, sunk 20 feet more. This lower part was intended as a tank or receptacle for the drainage water, and into it were carried the suction-pipes of the engine-pump for the purpose of carrying it off. The total height of the brickwork of this shaft is therefore 84 feet, 64 feet of which are of 50 feet diameter, and 20 feet of 25 feet. It consumed about 260,000 bricks, and 1200 barrels of cement. Its weight is about 900 tons. It is intended, eventually, as the stair-case for persons on foot. Near it, a little to the southward, will be built the shaft by which carriages are to ascend and descend—this will be 160 feet in diameter.

The soundings along the proposed line across the river gave 12 feet water at the lowest tides, and 36 at the highest, in the deepest parts; the bed was found to be a stratum of sand, about 3 feet 8 inches thick, lying upon one of about half that thickness composed of sand and clay; beneath was a bed of tenacious clay. The descending order of the strata at the lower part of this bed, in which the Tunnel is executed, is as follows:—stiff blue clay, about 2 feet; silt, 7 feet; ditto, mixed with shells, 7 feet; indurated clay, 3 feet; silt and gravel stones, 3 feet. It was found that the whole length, from shaft to shaft, would be 1300 feet.

Early in December 1825, the first horizontal excavation commenced. At the bottom of the wider part of the shaft a shield of cast iron, weighing 120 tons, 37 feet in width, by 22 feet in height, and 8 feet in depth, with its complement of 36 workmen, each in his respective cell, was entered into the solid earth, and began its new and extraordinary march. It proceeded for several months at a rate of about two feet in twenty-four hours, displacing from 90 to 100 tons of earth, which were lifted to the surface by the engine

in the shaft. 5500 bricks were used in each foot. On the 2nd of March, 1827, it had advanced 470 feet, or about one-third of the whole length: and though the line of the Tunnel dips about 3 feet in 100, the excavation in one part, towards the middle of the river, had approached within 10 feet of the water above it. The brick-work, which followed immediately, filled exactly the aperture which was made by the shield, and contained in its mass two arched passages, or road-ways, each 13 feet 9 inches wide, and 16 feet 10 inches high, lying by the side of each other, with a wall of 3 feet 6 inches thickness between them; the passages at first have no connection, but subsequently are laid together by arched perforations through the brick-work which separate them. The sides are 3 feet, and the arches at top and bottom 2 feet 7 inches thick at their smallest parts. About 11,000 bricks per day were used, entirely laid in cement; and the labour of one hundred men was constantly kept up by relays at stated periods. A main from a gas-work is laid along the floor, which conveys the gas to columns, placed in the connecting arches as they are formed, branches from which illuminate both the road-ways in a beautiful and most perfect manner; and a total freedom from water is preserved by drains beneath, which empty themselves into the engine tank in the shaft. In the use of these and innumerable other expedients to facilitate the progress and anticipate or overcome the difficulties of this extraordinary work, Mr. Brunel has displayed such fertility of invention, depth of resource, and professional intrepidity, as must place him in the highest rank of scientific engineers. But these qualities were destined to a very severe trial; on the 18th of May, 1827, at a distance of 544 feet from the shaft, the river found its way through a portion of loose earth, and entered the Tunnel, through the shield, with a velocity and volume which filled the Tunnel and the shaft in fifteen minutes. This happened while the workmen were at their duties, but no lives were lost. About 1000 tons of loose soil and rubbish descended into the tunnel.

The breach was examined by means of the diving bell, and repaired by depositing about 1500 cubic yards of clay in bags in and around it. The water was then pumped out, and the permanent works were found very slightly injured; the shield was restored and adjusted, and in the latter part of September the works recommenced. The dangerous part was passed, and 52 feet added to the length achieved, when the river, at six a. m. of the 12th of January, 1828, broke through the shield a second time. The tunnel was filled in less than ten minutes, and the rush of water brought with it a current of air that put out the lights, and, principally owing to this circumstance, six of the workmen were unable to extricate themselves —the rest escaped. Mr. Brunel has reported that the aperture in the bed of the river is much less than at the last accident, and consequently that the mischief may be repaired at a much less expense. The point at which this irruption occurred was at 600 feet from the shaft, within 25 feet of the middle of the channel of the river, leaving about 700 feet still to be executed. At this time (21st Feb. 1828) the breach is not perfectly stopped, but every exertion

is making to accomplish it. Independently of the expense incurred by this last accident, the expenditure, up to the present time, has been 157,000*l.*, of which about 38,500*l.* has been laid out in the purchase of premises and machinery, and 118,500*l.* in the works. The Directors state that about 75,000*l.* will be necessary to complete the tunnel to the north embankment. Books are opened for a public subscription in aid of this noble work.

XXVI. BRIEF ACCOUNT OF THE MORE IMPORTANT MECHANICAL INVENTIONS OF THE YEAR 1827.

The value of science is best shown by its influence on the happiness and well-being of mankind. This is an axiom that cannot be too often repeated, though it must be sufficiently obvious that it is not borne in mind by the great bulk of contributors to the scientific periodicals of the present day. Crude suggestions for the construction of a perpetual motion too often take the place of valuable discoveries in the arts and manufactures; and the application of science to the useful arts and domestic economy is little, if at all, attended to.

An historical and systematical detail of the progress of science during the past year would, evidently, occupy more space than can be devoted to the subject in this little work; we must, therefore, confine ourselves to those inventions alone that are generally interesting on account of their utility.

In chemical science but few dicoveries have been made during the past year, and of these the only two of real importance are the discovery of the disinfectants, by M. Labarraque, and the generation of resin gas by Mr. Daniell. The labours in mechanical philosophy have, however, made ample amends for this paucity in chemical science. This will be sufficiently apparent, by a reference to the annexed analyses, in which we have endeavoured, as much as possible, to strip this branch of knowledge of its technicalities, and to furnish an accurate view of all that has been added to practical science during the past year.

New Paper.—A mode has been discovered in France of fabricating paper solely from the *glycyrrhiza germanica*. It is said that this paper is cheap, that it is of a whiteness superior to the paper generally made, and that size is not requisite in its manufacture.

Improvement in the Construction of Bedsteads, Sofas, &c.—This improvement, communicated to Mr. Perkins by a foreigner, is very simple and effective. The object of it is to keep the canvass bottom or sacking of a bed always in a proper state of tension. This is effected by making the two horizontal bars or rails, to

which the canvass is nailed, turn a little round their axis, by means of a lever. They are then held in this position, which, of course, stretches the canvass, by a click and ratchet wheel, which has also the effect of keeping the joints of the rails and posts firmly together.

Valve for Water-Pipes.—Mr. Darnell, of Pentonville, has lately invented a water-valve as a substitute for the ordinary ball-cock, which, on account of its great simplicity, should not be passed unnoticed. The chief objection to the ball-cock arises from the length of its lever, and the consequent facility with which it may be abstracted from those cisterns that are placed in an exposed situation. There is, also, another evil attendant on this part of the apparatus, viz. that its effect is not instantaneous; indeed, the ball is frequently found to describe an arc of more than twelve inches ere the water is entirely stopped.

The mechanical arrangement of Mr. Darnell's apparatus will be fully understood by a reference to the accompanying diagram.

The tube A is soldered to the end of the supply-pipe, and the lower portion B is attached by a common screw, which need not be water-tight. The conical valve *c* is shown in the dotted representation as resting in its seat above; but in the shaded figure, C, it has sunk to its ordinary situation. The area of the apertures *h h* are equal to that of *c*, so that sufficient egress is given to the descending fluid. When the cistern is filled to the required height, a float of cork, or any other buoyant body, attached at D, raises the valve, and the communication is thus cut off.

By an examination of the sketch, it will be seen, that this apparatus presents three very prominent advantages. Economy is an important consideration, and this desideratum it possesses in a very eminent degree. In the second place, it may be observed, that its action is decidedly more rapid than that of the ball-cock; and lastly, it occupies much less space, as a cylinder of cork, ten inches in diameter, is abundantly sufficient to overcome the usual pressure in the supply-pipe.

Artificial Stone.—Mr. Ranger, of Brighton, has succeeded in perfecting an artificial stone, much harder than common stone or brick, being equal in durability to granite; and it has also the advantage of being considerably cheaper. It is capable of being modelled to any shape, and has, when put up, the appearance of

Portland stone. Of course no cement is required in the construction of buildings in which it is employed.

Berrola's Watch Alarum.—This useful appendage to a watch is intended to give an alarm at any hour during the night. Instead of encumbering a watch designed to be worn in the pocket with the striking apparatus, by which it would be increased to double the ordinary thickness, this ingenious invention has the alarum or striking part detached, and forming a bed, on which the watch is to be laid; a communication being made by a lever, projecting through the watch-case, to connect the works. This appendage may be applied to any watch of the usual construction; and as it is by no means expensive, it is likely to become an important improvement.

Sea-couch for Preventing Sea-sickness.—The object of this invention, contrived by Mr. Pratt, of New Bond-street, is to construct an elastic or swinging seat, couch, or bed, for preventing the uneasy motions of a ship or carriage. To effect this, the frame of the seat or couch is suspended on jimbals or joints, turning at right angles to each other, and an elasticity is produced both in the seat or cushion, and in the swinging frames, by the rise of spiral metal springs. These springs are made by twisting steel or iron wire into the form of an hour-glass, that is, like two cones united at their apices. The lower points of these springs are to be sewn to the canvass or webbing, and their upper parts secured in their proper situations and erect positions, by packthread or small cord, tied or braced from one to the other, crossing like a net. On the tops of these springs, the usual covering of canvass is laid, and then a thin layer of horsehair or wool, upon which the outer covering is fitted.

Improvement in the Manufacture of Varnishes.—It is usual in the manufacture of spirit varnishes, to mix glass or sand with the resin, for the purpose of affording ready access of the alcohol to all parts of the solid mass. M. Ferrari, however, recommends that, in place of these substances, a coarsely-powdered charcoal should be used; for the glass or sand frequently tends to aggregate the resin at the bottom of the vessels and protect it from the solvents, whilst, on the contrary, the charcoal rather tends to raise and divide it. The most advantageous proportion appears to be about one ounce of charcoal to one pound of the spirits or the oil of turpentine used.

Lamp without a Wick.—This ingeniously contrived lamp is, as it is commonly called, a self-generating gas apparatus. It serves to manufacture oil-gas without the inconvenience of a retort and furnace. In its common form, this lamp consists of a light and buoyant dish, which is intended to support the small tube through which the oil is intended to be raised; this is effected partly by capillary attraction, and partly by hydrostatic pressure. On applying a taper to the tube, the oil is decomposed at the extremity, and gas is generated.

An improved lamp on this construction may now be noticed. It is represented in the accompanying diagram, and consists of three tubes or burners, *a*, *b*, *c*, so arranged, as to resemble a flat band wick. In this case, the light is much greater than when those of the single-tubed lamps are employed.

Syphon Lamp.—A very elegant modification of the above lamps may be constructed by means of a syphon of glass suspended over the edge of a vessel.

The vase is, in this case, furnished with a glass syphon *a b c*; and as the limb *c* is longer than the opposite one *a*, which is immersed in the oil, it will, when once filled, evidently flow towards that point. If the syphon be made to float on the surface of the oil by means of a piece of cork instead of being suspended on its edge, the flame will be perfectly equable.

New Mode for Preventing the Sinking of Ships at Sea.—This important discovery, made by Mr. Watson, consists in the introduction of copper tubes, of a cylindrical form, between the beams which support the deck; these tubes are filled with atmospheric air, and terminated at each extremity by convex or semiglobular ends, every part of the cylinder or tube being hermetically sealed.

Security from Fires in Theatres.—At the time of re-constructing the Theatre l'Odéon, after its destruction by fire, it became a question, whether a metallic screen should not be interposed at the proscenium, between the audience part and the stage, for the purpose of preventing the rapid communication of the combustion of the parts behind the scene, or upon the stage, to the body of the theatre. M.

D'Arcet strongly opposed the use of an impermeable screen, but recommended one of wire, and founded his opinion on the following facts, which, if generally known, might tend to give a degree of self-possession to the public, in a theatre, should they ever be called upon to act in such a critical situation. "I had occasion accurately to observe the first destruction of l'Odéon, by fire, in the year 1799. I then remarked that the fire spread rapidly behind the scenes, but without any smoke appearing in the body of the theatre; and I was able to remain, for a long time, in one of the second tier of boxes on the left side, without being inconvenienced by the heat, and having nothing as a protection but the powerful current of air which passed through the theatre, and proceeded to invigorate the combustion of the scenery and wood-work upon the stage. Nearly the whole of that part of the theatre was on fire, but the public portion quite untouched, when a piece of inflamed wood fell on the left side of the centre, rebounded over the balustrade, fell into the orchestra, and then set fire to one of the benches in the pit. The combustion of that part thus commenced, but the current of air towards the stage was so rapid, that the smoke passed nearly horizontally towards it, and the fire made but slow progress in the pit. I witnessed this effect for more than half an hour, and beheld the whole of the orchestra, and nearly the whole of the pit in flames, without there being any sensible portion of smoke in the body of the theatre, above the first tier of boxes. I was then obliged to work at a pump, and prevented from observing any longer the progress of the fire."

M. D'Arcet then observes, that an impermeable metallic screen would, in any such case, have done far more harm than good. Supposing it strong enough to withstand the pressure of the air upon it, it would quickly become red-hot, and from causing the ascent of a current of highly-heated air on its side towards the body of the theatre, would, in every way, tend to inflame that part of the building; it would also confine the air there, and in a few moments make it unfit for respiration. On the contrary, an open metallic screen, with large meshes, would appear to present great advantage; the air would pass freely, and consequently, exert no serious degree of pressure upon it; the screen itself would be preserved cool by the rapid current going through it; inflamed pieces of wood, when falling, would be retained on the side already in flames; the firemen could throw water through it upon the burning places on the opposite side; and none of the inconveniencies would be occasioned by it, which so evidently belong to the impermeable screen.

Composition for washing in Sea Waters.—This composition, invented by Mr. Heard, which is secured by patent, is thus made. Take a highly concentrated solution of the alkalis, soda, or potash, with an equal weight of any earthy base, (China, clay or porcelain earth is best). These materials being mixed together are to be ground in a mill in the same way as white lead is ground, and this will produce a thick paste, one pound of which is sufficient to soften four gallons of sea water.

Lear's Improved Pump.—This valuable hydraulic machine is represented in the above diagram. It is sold at a very moderate price by Mr. F. Lear, of Holloway; and the simplicity and compactness of its arrrangement will be at once apparent to any person at all acquainted with practical mechanics.

The barrel is furnished with a solid piston H, made to fit air-tight, so as to form a vacuum when it is raised to the upper extremity; the water is then raised by the suction-pipe C to restore the equilibrium, and raising the valve at A fills the body of the pump. The discharge is effected at the outlet valve B.

Mr. Partington, of the London Institution, in a lecture delivered before the Members of the Mechanics' Institution, thus alluded to the above pump: "I have now, gentlemen, to call your attention to the construction of a pump, in which, owing to the admirable arrangement of the valves, the water-way is much greater than in the pump we have just been examining. I need hardly add, that the friction is proportionably diminished. Your learned and philanthropic president, who is ever ready to step forward and assist the ingenious artisan in his endeavours at improvement, has strongly recommended Mr. Lear's pump, both on account of its cheapness and simplicity."

Mr. Partington afterwards proved, in the most satisfactory way, that this pump could not be choked by any of the ordinary casualties incident to a ship's pump.

Dobereiner's finely divided Platina.—The following is M. Dobereiner's process for obtaining finely divided platina, fit for the performance of the experiments which he first made on the combination of oxygen and hydrogen, at common temperatures. Mix muriate of platina with a solution of neutral tartrate of soda in a glass tube, half or three quarters of an inch in diameter, and twenty or thirty inches in length, and apply heat until the fluid becomes slightly turbid; afterwards expose it for several days to the sun's rays. The greater part of the platina will separate from the solution, and be deposited in minute laminæ, of a greyish black colour on the sides of the glass; the tube and its contents are to be put into a glass vessel containing water, and it is to be filled with hydrogen gas; the platina, becomes almost immediately white and shining like silver, and may then be readily detached from the glass. During the reduction of the platina, the tartaric acid is partly converted into carbonic and formic acids. "As the inflammation of the hydrogen," it is said, "is caused by abstracting a portion of the caloric from the oxygen, effected by the platina, the

smaller the laminæ of the metal are, the more readily is the incandescence produced." Spongy platina for the lamps for instantaneous light is prepared of great power, by moistening the muriate of ammonia and platina with a concentrated solution of ammonia; the paste formed is to be heated to redness in an earthen or platina crucible.

Cold Injection for Anatomical Preparations.—If a mixture of varnish and vermilion have a small quantity of water mixed with it, it soon sets and becomes hard. This affords an excellent composition for anatomical injection, being very beautiful and very penetrating, (so much so, that it frequently returns by the veins,) and requiring no heat to be applied to the subject. This particular kind of injection was invented by an American anatomist of the name of Ramsay, and preserved as a valuable secret by him for the exclusive use of his dissecting room. The proportions, &c. of the ingredients will soon be attained by a few experiments.

Electro-magnetic Instrument.—A very beautiful instrument has been invented by Mr. Watkins of Charing Cross, for showing the galvanic agency between copper and mercury, by the revolution of a spiral coil of copper wire, with a vertical pin affixed to its top, the pin resting in a cavity at each extremity of a horseshoe magnet, placed in a vertical direction. The connection between the poles of the magnet is made by a cross piece, communicating with the head of each heliacal spring. When the communication is effected, the coils rapidly revolve on their centres, but on changing the connecting wires, the motion may be reversed at pleasure.

New Register Rain Gauge.—This rain gauge, invented by Mr. Bevan, has the collecting vessel of the form of an inverted cone, with a base twelve inches in diameter. From the lower end of this vessel passes a tube three-fourths of an inch in diameter, to the receiving cylinder, six inches in diameter and thirty-six inches deep. In the receiving cylinder there is a copper float, about nine and a half inches in diameter, and two inches high, having a socket on the middle of the upper side to support a light rod of deal about five feet long, near the upper part of which is fixed a small frame, with friction rollers, to support a black-lead pencil. The pencil is kept upon the roller by a small weight and is also pressed forwards by another small weight, against a sheet of paper, which is fastened upon a brass cylinder two feet long, and five inches in diameter. The brass cylinder is connected by a line and pulley-wheel with a time-piece, so as to revolve uniformly, at any pace that may be required. The whole of the apparatus, except the first-mentioned conical vessel, is placed under cover. The deal rod which carries the pencil is about four inches wide, and one fourth of an inch thick, and passes between two vertical guides, to insure the parallel position of the pencil. The moment the rain begins to fall into the collector, it is conveyed by the tube into the receiving cylinder, and begins to raise the float, and with it the deal rod with its pencil,

which makes an oblique line on the paper, compounded of the vertical motion of the pencil and the horizontal motion of the surface of the brass cylinders, and indicates the quantity of rain fallen, by the total height of the oblique line, and the rate of falling by the angle of obliquity, and the time of the beginning and end of each shower by the distances along the line. The only care necessary, is to wind up the time-piece regularly, and to take off the paper from the cylinder, and replace it with a fresh sheet, marking the time on the paper when it is put on.

Lightning Rods.—Dr. Fischer states, that when iron is magnetised, it loses much of its conducting power for ordinary electricity; and concludes, from his observations, that iron, which is known to become magnetic by even feeble electric explosions, is a very improper metal for the construction of lightning rods. He relates an instance in which a rod of this metal, placed as a lightning conductor upon a powder magazine, had entirely failed on several occasions in preventing the explosion of lightning close by its side. Upon examining this rod, it was found to have attractive and repulsive magnetic properties.

M. Fischer consequently recommends copper as the metal to be used, and advises that the end be gilt, or made to terminate in a gold point, rather than with platina, because the former is so much superior in conducting power.

THE END.

BRITISH
14 OC 1902
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PRINTED BY WILLIAM CLOWES, STAMFORD STREET.

which makes an oblique line on the paper, compounded of the vertical motion of the pencil and the horizontal motion of the surface of the brass cylinders, and indicates the quantity of rain falling by the length of the oblique line, and the rate of fall by the angle of obliquity, and the time of the fall by the number of lines in the direction of the length of the paper. The time of the commencement of the fall is found by the time on the